Hughes 9201 User Guide

P/N 3500152

Version 5.0

inmarsat

HUGHES

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SAFETY INFORMATION

For your safety and protection, read this entire user manual before you attempt to use the Broadband Global Area Network (BGAN) Satellite Terminal. In particular, read this safety section carefully. Keep this safety information where you can refer to it if necessary.

WARNING SYMBOLS USED IN THIS MANUAL

WARNING

Potential radio Frequency (RF) hazard. Where you see this alert symbol and WARNING heading, strictly follow the warning instructions to avoid injury to eyes or other personal injury.

WARNING

Where you see this alert symbol and WARNING heading, strictly follow the warning instructions to avoid personal injury.

DANGER

Electric shock hazard: Where you see this alert symbol and DANGER heading, strictly follow the warning instructions to avoid electric shock injury or death.

WARNINGS FOR SATELLITE TERMINAL

DO NOT STAND IN FRONT OF THE ANTENNA

This device emits radio frequency energy. To avoid injury, do not place head or other body parts in front of the satellite antenna when system is operational. Maintain a distance of two meters or more from the front of the Satellite Terminal antenna.

PROPERLY GROUND THE EXTERNAL ANTENNA

Failure to properly ground the optional external antenna may result in severe personal injury or death. Do not attempt to ground the optional external antenna unless you have the skills to do so in accordance with local electrical codes.

DO NOT OPERATE DURING ELECTRICAL STORMS

Operation of the Satellite Terminal during electrical storms may result in severe personal injury or death. Disconnect the Terminal from the computer and store the unit indoors if lightning is anticipated in the area of operation.

GENERAL

Handle your Satellite Terminal with care. The enclosure is weather resistant per IEC 60529 IP55; however, do not submerge the unit or expose it to severe rain storms. Avoid exposing your Satellite Terminal to extreme hot or cold temperatures outside the range -25°C to +60°C.

Avoid placing the Terminal close to cigarettes, open flames or any source of heat.

Changes or modifications to the Terminal not expressly approved by Hughes Network Systems could void your authority to operate this equipment.

Only use a soft damp cloth to clean the Terminal.

To avoid impaired Terminal performance, please ensure the unit's antenna is not damaged or covered with foreign material like paint or labeling.

When inserting the USIM/SIM, do not bend it or damage the contacts in any way. When connecting the interface cables, do not use excessive force.

IN THE VICINITY OF BLASTING WORK AND IN EXPLOSIVE ENVIRONMENTS

Never use the Satellite Terminal where blasting work is in progress. Observe all restrictions and follow any regulations or rules. Areas with a potentially explosive environment are often, but not always, clearly marked. Do not use the Terminal while at a petrol filling station. Do not use near fuel or chemicals.

QUALIFIED SERVICE

Do not attempt to disassemble your Satellite Terminal. The unit does not contain consumer-serviceable components. Only qualified service personnel may install or repair equipment.

BATTERIES AND ACCESSORIES

Use approved batteries and accessories only. Use of non-approved accessories may result in loss of performance, damage to the Satellite Terminal, fire, electric shock or injury.

The AC power adapter is for indoor use only. It has an indoor operating temperature range of 0°C to +40°C and provides an output voltage of 19 VDC.

The storage capacity of the battery decreases when operated.

The terminal will only charge the battery when the temperature is within the range of 0 to 45°C.

CONNECTING DEVICES

Never connect incompatible devices to the Satellite Terminal. When connecting the Satellite Terminal to any other device, read the device's User Manual for detailed safety instructions.

PACEMAKERS

The various brands and models of cardiac pacemakers available exhibit a wide range of immunity levels to radio signals. Therefore, people who wear a cardiac pacemaker and who want to use a Satellite Terminal should seek the advice of their cardiologist. If, as a pacemaker user, you are still concerned about interaction with the Satellite Terminal, we suggest you follow these guidelines:

- Maintain a distance of 30 cm between the Terminal and your pacemaker;
- Maintain a distance of two meters from the front of the unit's antenna;
- Refer to your pacemaker product literature for information on your particular device.

If you have any reason to suspect that interference is taking place, turn off your Satellite Terminal immediately!

HEARING AIDS

Most new models of hearing aids are immune to radio frequency interference from Satellite Terminals that are more than 2 meters away. Many types of older hearing aids may be susceptible to interference, making it very difficult to use them near a Terminal. Should interference be experienced, maintain additional separation between you and the Satellite Terminal.

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INTRODUCTION

ABOUT THIS PRODUCT

The Hughes Network Systems (HNS) 9201 Broadband Satellite Terminal and WLAN Access Point is your gateway to global communication. The 9201 allows you to simultaneously send and receive IP packet and circuit-switched data via Universal Serial Bus (USB), Ethernet, Integrated Services Digital Network (ISDN), and WLAN interfaces over the Inmarsat BGAN satellite network.

The 9201 unit offers you the following features and benefits:

- 492 Kbps data (transmit and receive)
- Speech (4Kbps)
- ISDN voice (3.1KHz audio)
- ISDN data (64Kbps)
- WLAN access point
- Multi-user capability for sharing a single unit
- Selectable Quality-of-Service (QoS)
- Full IP compatibility for Email, file transfer (FTP), browsing, VPN, etc.
- Cost-effective "always-on" access – charges only for data sent and received
- UMTS IP-based services
- WLAN, FCC, CE, and GMPCS certified
- Subscriber Identification Module (SIM) card security
- LED indicators and audio pointing aids for obtaining an Inmarsat satellite signal
- GPS and WLAN status LEDs
- Built-in battery for operation when AC power is not available.
- Built-in antenna with look-angle and compass guides on the unit. Support for optional external passive antenna.

The unit is easy to install and connects in minutes. It is built for use in fixed, semi-fixed, and portable environments. The rugged design allows the unit to be installed outside in extreme weather conditions for extended periods of time, and the small size and weight lets you easily move it from site to site.

The Satellite Terminal carries a warranty for 12 months from the date of sale. Contact your Service Provider if you have questions about the warranty, or need to return the terminal for repair.

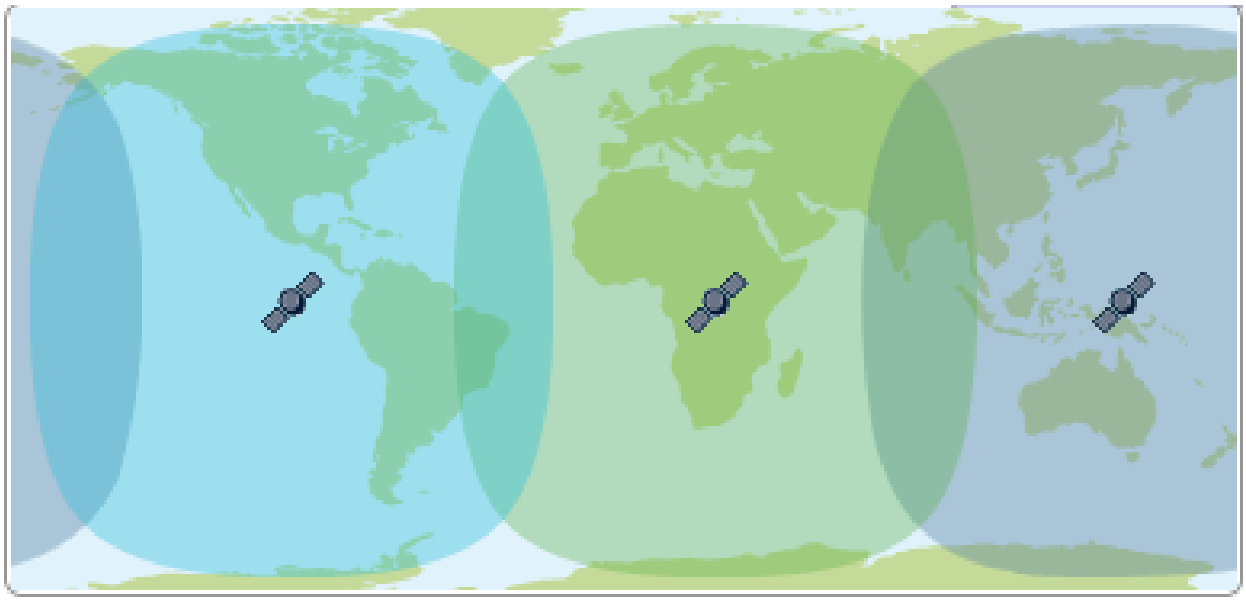
In this document, the following names and abbreviations are used to identify the Satellite Terminal and your computer.

Term	Definition
ACA	Automatic Context Activation
Terminal	BGAN Satellite Terminal
UT	User Terminal; 9201 BGAN Satellite Terminal
TE	Terminal Equipment, e.g., a computer

About This User Guide

This user guide contains the most up-to-date information available on this product, on the date it was written.

Coverage Area



The map shows the global coverage provided by the BGAN satellite network. You are able to access one of the BGAN satellites by pointing the terminal to that satellite. In addition to the satellites, the BGAN system includes infrastructure equipment on the ground that connects to telephone networks and the internet. By accessing the satellites, your terminal can then connect to telephone and data networks.

Package Contents

When you unpack the Satellite Terminal package, you will find the following:

- BGAN 9201 Broadband Satellite Terminal and WLAN Access Point
- Rechargeable lithium ion battery pack
- AC power adapter and cable (100 – 240 VAC)
- Travel adaptor
- USB cable
- Ethernet cable
- ISDN cable

The following are available accessories not included in the package:

- Extended lithium ion battery pack
- Fix Mount Kit
- DC (vehicular) power adapter
- External passive antenna
- 2-4 wire ISDN terminal adapter

Your Service Provider will supply you with a Subscriber Identification Module (SIM) and its PIN, and Satellite Terminal configuration instructions – you will need these to access the network. Note: The SIM card will also have four (4) MSISDN numbers associated with it for the following ISDN services:

4K Voice

3.1KHz Audio/Fax

64K UDI data

56K RDI data

Minimum System Requirements

These are the minimum computer system requirements for successful interface with the Satellite Terminal:

- Internet Browser: Microsoft Internet Explorer (7 or 8), Mozilla Firefox or Safari. Java must be active and running version 1.6 or newer.
- Support for at least one of these interfaces – USB, Ethernet, or WLAN (802.11b or b/g).
- 100 MB of free hard disk space (if using Inmarsat's LaunchPad software).

INTRODUCTION TO GETTING STARTED

This section describes the simplest and quickest way to connect the 9201 Satellite UT to the BGAN Network. If you are a first time user, you will be guided through the procedure for powering up your terminal, obtaining a GPS fix, connecting your computer to the terminal, and registering with the BGAN Network. You are then ready to start using voice and broadband services.

SETTING UP YOUR TERMINAL

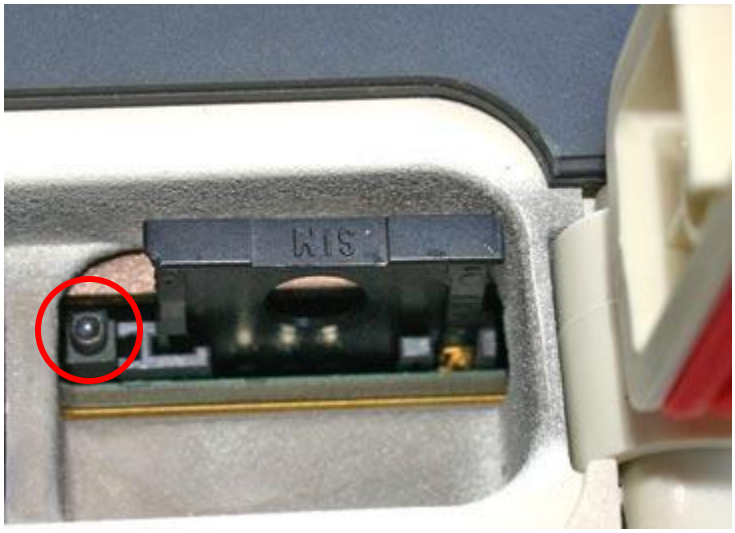
To set up your terminal, you must:

- Install the USIM/SIM Card and the Battery supplied with your terminal
- Charge the battery.

To set up the terminal:

1. Position the terminal so that the battery door is facing you.
2. Open the battery door. (If you have already installed the battery, release and then remove it.)

3. Push the button on the left-hand side of the USIM/SIM card holder (use a retracted pen or similar non-metallic object, if needed). This releases the SIM holder from its slot.



4. Install the USIM/SIM card in the card holder, making sure it is snapped into place.

5. With the card in place, orient the holder with the card's gold contacts facing down. Place the holder back in its slot in the BGAN terminal.

6. Put the battery into its slot in the BGAN terminal and lock it in place. Close and lock the battery door.

CHARGING THE BATTERY

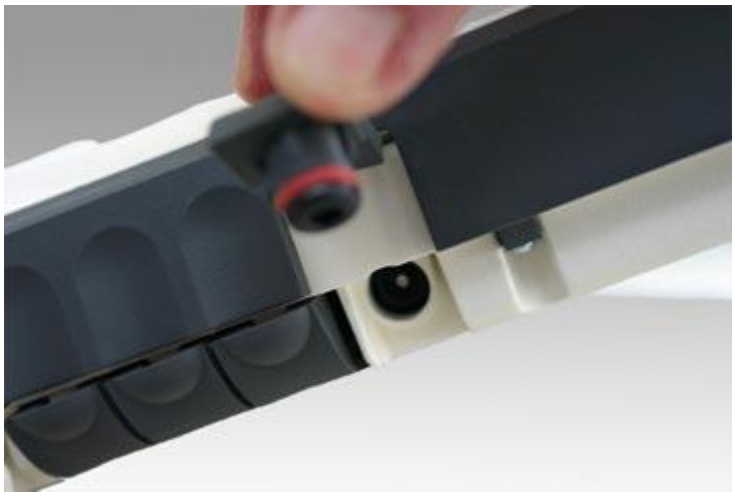
To charge the battery, connect the AC power adapter to the terminal and to an external power source. The temperature of the battery must be within 0°C to 45°C for charging to take place successfully.

USING THE AC POWER ADAPTER

The AC power adapter is for indoor use only. It has an indoor operating temperature range of 0°C to 40°C, and provides an output voltage of 19 VDC.

To power the terminal using the AC power adapter:

1. Remove the power adapter from the terminal box.
2. Insert the power adapter output connector to the DC Power Input Jack on the back of the terminal, as shown below:



3. Plug the AC Power Cable into a suitable AC power outlet, and charge the battery for three hours. If the AC Power cable does not fit into your power outlet, use the travel adapter.

☑ **Note**	You can operate the Satellite Terminal while the battery is charging.

You are now ready to install the BGAN LaunchPad Software.

INSTALLING BGAN LAUNCHPAD

As a first step, Inmarsat recommends that you install the BGAN LaunchPad Software on your computer. You can use BGAN LaunchPad to open and manage data connections, manage and monitor terminal operations, and monitor the status of the connections between your terminal and your computer. Alternatively, you can use the Web-based User Interface (UI) built into the UT by navigating your web browser to 192.168.128.100.

To install BGAN LaunchPad on your computer:

Download the latest LaunchPad from www.inmarsat.com/support

If you need more details, go to the section **LaunchPad Software Installation on page 60.**

When you start the BGAN LaunchPad application on your computer (TE) and connect to the Terminal, the Terminal will query the current USIM/SIM card to see if the Personal Identification Number (PIN) is enabled. If the PIN is enabled, the BGAN LaunchPad application displays a PIN window and requires you to enter the correct SIM PIN. If the SIM PIN is disabled, then the BGAN LaunchPad application bypasses this display. The correct PIN for your SIM should have been supplied by your service provider when you received the USIM/SIM.

If SIM authentication was successful, you are now ready to obtain a GPS fix.

OBTAINING A GPS FIX

Your Satellite Terminal contains an integrated GPS receiver that is used to provide location information to the BGAN network. GPS location information is required to register with the BGAN network, and the terminal automatically tries to get a GPS every time it is powered on.

The GPS antenna is located in the main antenna. For optimum GPS signal reception, make sure the Terminal is placed in a horizontal position pointed towards the sky. Since the GPS receiver needs to see at least 3 satellites, it should have visibility of a large part of the sky without obstructions from buildings, mountains or trees. To accomplish this, it might be necessary to take your Satellite Terminal out to a clear space to obtain a new GPS location. It may be possible to obtain a new GPS location in a less favorable circumstance, but the time to get the fix may be longer.

Once the terminal gets a GPS fix, it stores the location, and the terminal can be moved to a more convenient working area, such as inside a building by a window facing the BGAN satellite.

GENERAL INSTRUCTIONS

1. Take the Satellite Terminal outside and lay it down flat. Verify that the unit has an open view of the sky to get a GPS fix.
2. Power up the Terminal. The GPS LED will start to flash green indicating the terminal is getting a GPS fix.

3. Monitor either the BGAN LaunchPad GPS indicator or the Terminal's GPS LED for the status of the GPS fix. It may take a few minutes to get a fix. Once the terminal gets a GPS fix, the GPS LED will turn solid green (then the LED will turn off once the UT registers with the BGAN network).

The following describes the behavior of the GPS LED display as the terminal attempts to get a GPS fix:

- **Getting a fix**: The LED flashing green indicates the terminal has not obtained a fix since it was last powered on. The stored fix may be acceptable in which case the terminal may be able to register, but the LED will continue to flash indicating the terminal is still trying to get a fix.
- **Needs a fix**: The LED changes to flashing red indicating that the terminal tried to register, but the GPS fix was rejected by the network. In this case, you may need to place the UT under open sky and try again.
- **Got a fix**: The LED changes to solid green when a new GPS fix is obtained. The LED will remain on until the unit registers with the network and the fix is accepted. (Note that once the fix is obtained, the GPS receiver will be turned off unless it is still downloading almanac data from the GPS satellites).
- **Complete**: The LED turns off when the unit successfully registers with the BGAN network.
- **GPS Failure**: The LED will be solid red if the Terminal detects a hardware fault with the GPS module.

You are now ready to Connect the Terminal to the Computer.

CONNECTING THE TERMINAL TO THE COMPUTER

You can connect devices to the BGAN terminal over any of the following interfaces:

- USB
- Ethernet
- Integrated Services Digital Network (ISDN)
- WLAN

☑ **Note**	**There is no need to check the active interface.** All interfaces can be used simultaneously to accommodate multiple users.

☑ **Note**	During initial setup, the terminal can only be configured using either a USB or an Ethernet connection. Once the terminal has been configured, all four interfaces (USB, Ethernet, WLAN, and ISDN) can be used for data transfer depending on the service required. Your computer must be configured to support your chosen connection method. Refer to the documentation supplied with your computer for details.

CONNECTING BY USB

To connect the BGAN terminal to a computer using the USB port:

1. Connect the supplied USB cable to your computer's USB port, and insert the other end of the connector into the BGAN terminal's USB port.

2. At the terminal, slide the cable through the rubber door slot in order to secure and protect the connection.

☑ **Note**	When plugging in the USB cable for the first time, you will see Windows installing a new driver for the device.

USB drivers for the terminal are available from: www.inmarsat.com/support or www.bgan.hughes.com.

When you plug the USB cable into your computer for the first time, your computer will detect that new USB Hardware has been connected. You should then follow the computer's instruction to install the **Hughes USB LAN LINK** driver software (for computers using the Windows operating system, the installation is carried out using a **Found New Hardware Wizard**). Your computer will then use this driver to connect to the terminal.

CONNECTING BY ETHERNET

To connect the BGAN terminal to a computer using Ethernet:

1. Connect the supplied Ethernet cable to your computer's Ethernet port, and insert the other end of the connector into the BGAN terminal's Ethernet port.

2. At the terminal, slide the cable through the rubber door slot in order to secure and protect the connection.

CONNECTING BY ISDN

1. Connect the ISDN cable (use the provided Ethernet cable – it is a dual-use cable for both Ethernet and ISDN) to your computer's or phone's ISDN port, and insert the other end of the connector into the Terminal's ISDN port.
2. At the Terminal, slide the cable through the rubber door slot in order to secure and protect the connection.

CONNECTING BY WLAN

If you have not previously used the terminal's WLAN interface, it has to be enabled from LaunchPad or the terminal's built-in Web UI, with your computer connected to the terminal using either the USB or Ethernet interface. You can also enable the Wireless Encryption Protocol for added security. When the terminal's WLAN interface is enabled, the terminal's WLAN LED is either green (WEP is enabled) or red (WEP is not enabled).

Once configured, any computer with a WLAN interface can detect the terminal's WLAN SSID, and connect to it automatically.

Note: If WEP is enabled, you must provide other WLAN users with the proper WEP key in order for them to connect to the terminal.

You are now ready to Register with the Network.

CONNECTING TO THE BGAN NETWORK

Establishing a connection with the BGAN network requires the careful orientation of the BGAN terminal towards the satellite, a process called pointing. Accurate and precise pointing is important, because a badly-pointed antenna can reduce the data rate achievable over the network. When pointing is complete, you can register the terminal onto the BGAN network (registration is required before you can begin to use voice and data services over the BGAN network).

CHECKING THE GPS STATUS

After you have connected your terminal to a computer, you can check the GPS status by opening the BGAN LaunchPad application. Refer to the BGAN LaunchPad status bar and the GPS indicator light on your BGAN terminal for the current GPS status. The table below indicates each possible status:

LaunchPad Status bar symbol	Terminal GPS indicator light	Status
	Flashing Green	The terminal is getting a GPS fix after being turned on. If you have not changed location since last registering, you may be able to re-register with your last valid fix. Otherwise, you must wait until a new fix has been obtained (and the antenna is properly pointed) before registration can successfully occur.
	Solid Green Off	The terminal has a valid GPS fix. You are ready to point the terminal and register. The terminal has successfully registered.
	Flashing Red	The network will not allow you to register with the stored GPS fix. You need to get a new GPS fix.
	Solid Red	The GPS receiver in the terminal is faulty. Contact your Service Provider.

POINTING THE TERMINAL

You can use the BGAN terminal signal quality indicator lights for pointing if you know the approximate direction to the BGAN satellite.

TERMINAL STAND POSITIONING

The terminal's stand is used to position the terminal in the correct orientation.

1. Place the Satellite Terminal on a flat surface. Find the knobs located on each side of the unit. Loosen the knobs by rotating them both towards the unit, in the direction shown.

2. To prepare to lift the Terminal, place a finger in the lower right-hand corner of the unit and place your other hand in the middle of the unit.

3. Pull out the front stabilizer. Lay the Terminal back on the flat surface.

4. Lift up the Terminal while referring to the protractor on the right-hand side. The protractor gives you the angle at which the unit is positioned. Note that an angle of 0 to 45 degrees is displayed on the inside portion of the protractor, while an angle of 46 to 90 degrees is displayed on the outside portion. To start, select an angle between 15 and 30 degrees.

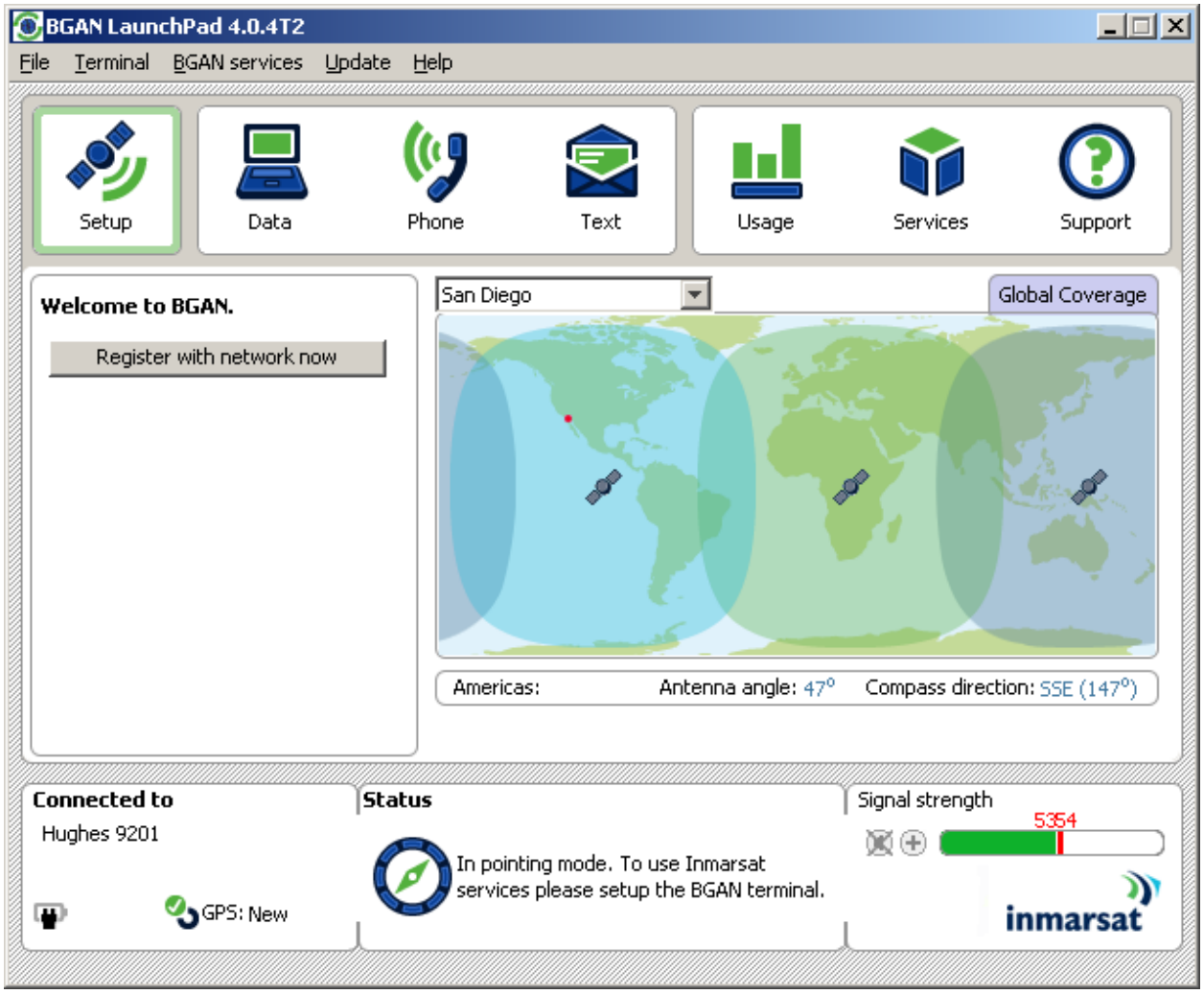
5. After you have positioned the Terminal at the desired angle, tighten the knobs by turning them away from the unit. Tighten them so that they are firm and hold the angle but are still movable in case further adjustments are needed. Note that both knobs will gradually tighten if you push the unit to a lower angle. This can help with locking the unit when the desired protractor angle is close to 90 degrees.
6. You can use the built-in compass for pointing the terminal in the correct direction. Refer to the Antenna Pointing section for further instructions.

Warning	**Do not stand in front of the Antenna** The Satellite Terminal emits radio frequency energy when in operation. Do not stand or place objects in front of the antenna while the terminal is operational.

USING THE BGAN LAUNCHPAD SOFTWARE

Start the BGAN LaunchPad application on your computer. The Setup Screen is shown below in Pointing Mode.

1. Confirm your nearest city in the information box to the left of the map. You can change it by clicking on the map at your current location or click on nearest city and then select from the list. Your location will be used to determine the recommended antenna angle and compass direction to any visible satellites. LaunchPad gives the compass direction in both degrees and direction (the compass shows direction as North, South, East and West, with 10 degree divisions).



2. Correctly point the terminal using one of the methods described below.
3. When you are ready to register with the network, click on **Register with Network now**. Refer to *Registering with the BGAN Network*.

   Note: You can also register with the network by pressing the "Audio" button on the terminal for 3-4 seconds. Alternatively, if you have an ISDN handset connected to the terminal, you can exit pointing and register by pressing the #1# keys.

   Once the GPS light goes out on the terminal, the terminal is registered with the network.
4. When you have successfully registered with the network, your position will be displayed on the map, but only if allowed by local regulations.
5. You can now make phone calls or set up data connections as described later.

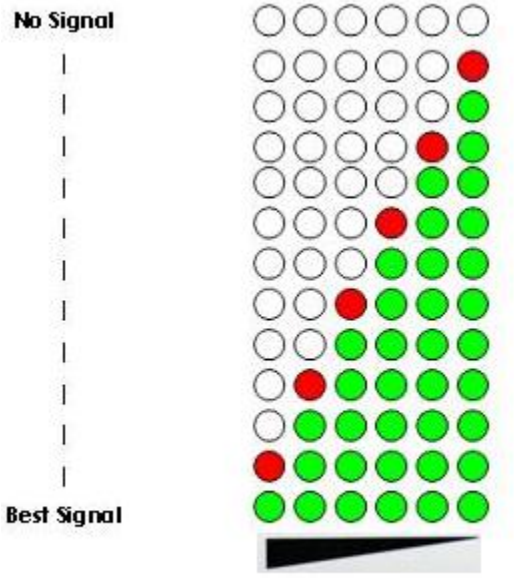
POINTING USING THE BGAN TERMINAL SIGNAL QUALITY LEDS

To point the antenna using the LEDs:

1. Set the angle and position of the BGAN terminal using the compass and the graduated scale. If you do not know the angle and position to set the terminal to, use the BGAN LaunchPad pointing screen for guidance.

   Watch the behavior of the Pointing Indicator LEDs as you point the terminal in order to obtain the maximum possible signal quality. Remember, the better the job you do pointing the terminal, the better the quality of the data and voice connections you will be able to make with it later.

2. The following table shows the colors of the pointing LEDs from the weakest to strongest, as you point the terminal to the BGAN satellite:



3. When you have finished pointing the terminal, you are ready to register with the network. Go to the next section ***Registering with the BGAN Network***.

POINTING USING THE AUDIO BUZZER

You can also monitor the signal quality during pointing by using the terminal's built-in audio buzzer. By default the audio buzzer is switched off. To use the buzzer when the terminal is in pointing mode:

1. Press the audio button to turn the buzzer on.
2. Monitor the signal quality using the buzzer. The higher the pitch and the shorter the interval between tones, the stronger the signal.

3. When you have finished pointing the terminal, you are ready to register with the network. Go to the next section, **Registering with the BGAN Network,** for registering with LaunchPad or the terminal's built-in Web UI.

   Note: You can also register with the network by pressing the "Audio" button on the terminal for 3-4 seconds. Once the GPS light goes out, the terminal is registered with the network and you can start to make ISDN calls without the use of LaunchPad.

4. When you register with the network, the buzzer turns off automatically.

   Note: If the audio button is pressed when the unit is not in pointing mode, it will have no effect.

☑ **Note**	**The audio buzzer will always default to off when the unit powers on.** When the unit is in pointing mode, pressing the Audio button (located in the front of the terminal) turns the buzzer on. Pressing it again turns the buzzer off. A long press of the button (3-4 seconds) starts registration with the BGAN network. Once you exit pointing, the buzzer will turn off. If the Audio button is pressed when the unit is not in pointing mode, it will have no effect.

REGISTERING WITH THE BGAN NETWORK USING THE WEB UI

When you have successfully pointed the antenna, you then need to exit antenna pointing and register with the BGAN network. You can do this from the Properties page of the terminal's built-in Web UI. See page 34 for details.

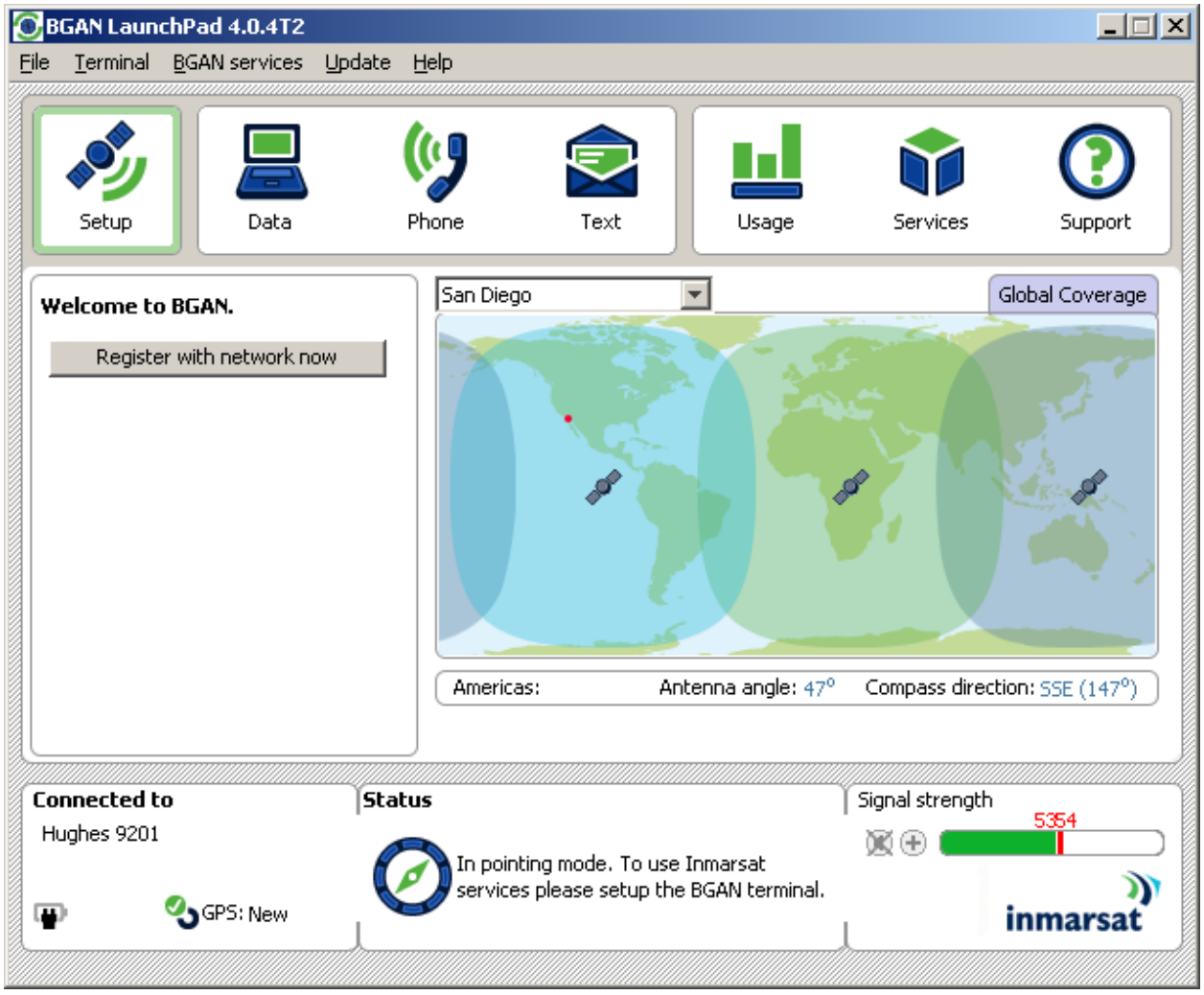
REGISTERING WITH THE BGAN NETWORK USING LAUNCHPAD

When you have successfully pointed the antenna, you then need to exit antenna pointing and register with the network. You can do this by a long press of the audio button located on the terminal. Alternatively, if you have an ISDN handset connected to the terminal, you can exit pointing and register by pressing the #1# keys. Otherwise, you can click on the **Register with network now** button on the BGAN LaunchPad pointing window.

REGISTRATION STATUS AND COVERAGE MAP

This page appears when you first start the LaunchPad application. It displays the registration date and time, terminal location information, other registration information, and the expected satellite coverage zone.

Note: The map depicts the BGAN network's expectations of coverage, but does not represent a guarantee of service. The availability of service at the edge of coverage areas fluctuates depending on various conditions.


BGAN LaunchPad 4.0.4T2
File
Terminal
BGAN services
Update
Help
Setup
Data
Phone
Text
Usage
Services
Support
Welcome to BGAN.
Register with network now
San Diego
Global Coverage
Americas:
Antenna angle: 47°
Compass direction: SSE (147°)
Connected to
Hughes 9201
GPS: New
Status
In pointing mode. To use Inmarsat services please setup the BGAN terminal.
Signal strength
5354
inmarsat

FIXED/SEMI-FIXED INSTALLATION

The satellite terminal can be mounted on a pole or flat surface (such as a wall or roof) using the Fixed Mount Kit accessory. This kit includes all the installation brackets, mounting hardware, tools, and instructions to complete the installation, except for the screws, bolts, etc. required to mount it to the structure. Proper installation ensures that the terminal is always correctly pointed at the satellite. Once properly mounted, the terminal can then be left alone for an extended period of time without having to be re-pointed or set-up. The Fixed Mount Kit accessory can also be re-used to install the terminal in different locations.

When mounted in a location where access to the terminal may not be straightforward (for example, mounted high on a wall), you may want the terminal to recover automatically after a power outage. To permit this, the following automatic mode settings are recommended (see the Automatic Mode section on page 88 for more details):

- Auto on mode is enabled
- LED off mode is enabled
- Antenna pointing bypass is enabled or Point Once mode is selected
- Automatic context activation (ACA) is enabled or an Always On context is configured (see the M2M Web page)
- SIM PIN entry is disabled

In addition, it is recommended that the battery be removed to prevent it from being damaged at extreme temperatures.

M2M OVERVIEW

The 9201 BGAN Terminal can be used unattended in a Machine-to-Machine (M2M) scenario, e.g., for SCADA applications. For this scenario, the terminal should be configured as described below. Note that the parameters described below are only supported on the terminal's Web UI (i.e., they are not accessible using the LaunchPad application).

SETUP Page:

Bypass Antenna Pointing – Point Once (or On)

Auto Power On: On

This allows the unit to come back on line automatically after a power cycle.

M2M Page

If you need the terminal maintain a PDP context at all times, use the Context Watchdog option:

1. Configure one or more IP addresses that can be pinged by the UT over the satellite link. For example, use DNS server IP addresses.

   Note that at least one address must be provided if this feature is enabled, but setting two or three addresses may help if there is difficulty reaching the first address.

2. Set the time between watchdog pings in order to control the interval at which the UT will check the link. Note that the minimum allowed value is 5 minutes.

To have the terminal automatically set up a context on power up, use the Always On Context feature:

1. If you only require a single "always on" context, set the Always On Context parameter on the M2M web page to On. If you require multiple contexts, use the options on the ACA page instead.

2. Set the Always on Static ACA IP Address if the desired TE has a known static IP address or if it never sends ARPs to the terminal. Alternatively, you can leave this IP address field blank (0.0.0.0), and the UT will set up a context for the first device it detects through ARP during startup.

With the Always On ACA feature enabled, the UT will set up the desired PDP context at startup, and automatically reactivate it if it is ever deactivated.

SMS Remote Control

To control the 9201 unit remotely, use the Remote SMS Control feature – see the Features (page 55) and SMS Remote Settings (page 52) web pages for details.

M2M Satellite Terminal Point Once Installation Procedure

Use the following procedure to install an M2M 9201 satellite terminal with the Point Once option (Setup Web UI page). This procedure assumes the 9201 terminal is mounted in the optional NEMA 4X enclosure shown below, but the same basic procedure can be used without the enclosure.

1. Prepare the M2M satellite terminal: route power and Ethernet cables through the cable ports, mount the 9201 in the enclosure, and connect all cables. Set the housing to the correct elevation angle for your location (at 0 degrees, the unit is vertical, pointing to the horizon, and at 90 degrees, it is horizontal, pointing to the sky).
2. Mount the unit so that the satellite terminal has a clear view of the satellite. Connect power to the terminal.
3. The satellite terminal will power up and within a few seconds will enter pointing mode and generate audible pointing tones (if in "Point Once" mode already). During staging the unit must be configured for "Point Once". Note that when in Point Once mode, the audio pointing tones will occur automatically, without having to press the audio button.
4. Standing to the side, behind, or below the terminal so as not to block the signal, rotate it to maximize the signal – the audio tones will increase in pitch and frequency as the signal improves.

5. Once the direction has been optimized, rotate the elevation to maximize the signal. This may be unnecessary if the unit was previously set to the correct elevation angle.
6. The signal may also be checked by viewing the reflection of the pointing LEDs on the inside top surface of the enclosure. Ideally at least 4 green LEDs should be visible. (This represents a C/No value of 54dB).
7. When the signal has been maximized, tighten the mounting screws.
8. Press the audio button on the top of the unit (you may have to tilt it out of the housing to get access to the button). The pointing tones and pointing LEDs will turn off.
9. Close the lid and insert and tighten the 4 screws that hold the lid closed. Apply a padlock to the latch if required.
10. Two minutes after the audio button is pressed, the unit will start to transmit and register with the network: it will start a "registering" audio tone (high pitched beep, beep which repeats after a 2 second silence). Note that this tone will be muffled because the box is sealed. From this point forward, the installer should avoid putting their body within 1 meter of the front of the satellite terminal due to RF fields.
11. Once the terminal registers and attaches to the network, the "registering" tone will turn off (after about 10 seconds).
12. The unit will then activate a data connection to the network (if an "Always On" context is configured on the M2M Web UI page). While the connection is being activated, a "connecting" tone will be heard (2 pairs of high/low beeps which repeat after 2 seconds of silence). If the unit connects quickly, this tone may not be heard at all.
13. Once the data connection is active, the "connecting" tone will turn off (after 5 to 10 seconds) and the "installation complete tune" will play (low to high scale, 3 times). The unit is now fully functional.
14. The installer should now verify correct operation/end-to-end connectivity between the user equipment and the BGAN network before leaving the site.

Once the Point Once install process completes successfully, the satellite terminal will set a flag in its non-volatile memory. The unit will use this flag to bypass the pointing operation and tone generation on subsequent power ups (for example, if the unit reboots or power is lost and then restored).

If any problem is encountered during the installation process, the installer can (long) press the terminal's power button at any time. This will power down the unit and delete the pointing complete flag. As a result of this, on the next power up, the unit will re-enter the pointing process (see Step 3 above).

ERROR CASES

Pointing tones not heard on power up when trying to install
Unit may have been previously pointed: power down with the power button and power up again.
Alternatively, the wrong terminal software may be installed, or the point once configuration option may not be set – you can check these on the terminal's Properties and Setup web pages.

Registering tone does not turn off
The unit may be incorrectly pointed and the signal may be too weak – check pointing procedure.
The SIM may be inactive and may be rejected – check with the satellite service provider.

Connecting tone does not turn off
The unit may be incorrectly pointed and the signal may be too weak – check pointing procedure.

The SIM subscription may be wrong – check with the satellite service provider.

Connecting tone does not turn on
Always on data connection may not be configured (check M2M web page).

SIZE AND WEIGHT

The 9201 Satellite User Terminal (UT) is 27.5 cm x 34.5 cm x 5.0 cm. Its weight is 2.8 kg (including the battery).

The small size and weight allow you to easily move it from site to site, and it can be connected at a new site in minutes.

TERMINAL INTERFACES

INTERFACE OVERVIEW AND DEFAULTS

The 9201 Satellite Terminal includes four interfaces that can connect to your computer.

- Ethernet
- USB
- ISDN (for voice and data)
- WLAN (IEEE 802.11b)

By default, the ISDN, USB, and Ethernet interfaces are active when the unit is turned on. The 802.11b Wireless LAN (WLAN) interface is disabled by factory default, but it can be enabled by using the BGAN LaunchPad application software or the terminal's built-in Web UI.

When the Terminal is connected to a DC power source, such as an AC adapter, the ISDN interface remains on at all times. Conversely, when running only from the battery, the ISDN interface will turn off 5 minutes after pointing is completed if no ISDN device is connected. You can re-enable the ISDN interface from the BGAN LaunchPad or Web UI if you subsequently need to connect an ISDN device. This saves power and maximizes operating times because the ISDN power sourcing circuitry uses power even if no device is connected. If an ISDN device is connected at power up and then disconnected before the 5 minute timer expires, the ISDN interface will power off.

The following table summarizes the interface on/off behavior during battery and AC Power operation:

Interface		Battery Operation	AC Power Operation
USB		On	On
Ethernet		On	On
ISDN		On. After 5 minutes, if no ISDN device is detected, turns off	On
WLAN	Off (default)	Off	Off
	Enabled	On	On

ESTABLISHING COMMUNICATIONS BETWEEN A COMPUTER AND THE UT

ETHERNET

Ethernet communications are established by connecting your computer Ethernet LAN port directly to the Satellite Terminal LAN port via the supplied Ethernet cable.

USB

USB communications are established by connecting your computer USB port directly to the Satellite Terminal USB port via the supplied USB cable. Please ensure that you have the proper USB driver installed on the computer before connecting the cable for the first time.

ISDN

ISDN communications are established by connecting your computer ISDN port or ISDN device directly to the Satellite Terminal ISDN port via the supplied ISDN cable (same as the Ethernet cable).

With the ISDN interface, you can make voice or data calls. Only one terminal at a time may make a call, since only one B channel is supported per Terminal in the BGAN system. However, up to four ISDN phones may be utilized with the terminal's single ISDN connection by using a passive ISDN splitter. Note that only one of the ISDN devices may make a call at one time.

WLAN

The WLAN function is used in access point mode. You can use the BGAN LaunchPad or Web UI to configure the following parameters:

- Wireless LAN interface on/off. The default is off.
- Network (SSID) name. The default is "BGAN", but you can change it.
- Channel number. This controls the radio channel number (1-14) used by the access point. Depending on your country, only certain subsets of these channels may be used (3 options: France, Spain, or Rest of the World). Channel 11 is common to almost all countries, so it is used as the default.
- Encryption. 64- or 128-bit WEP encryption can be enabled. Up to 4 WEP keys can be entered, in either Hexadecimal or ASCII format.

  Note: Not all computer Operating Systems will convert ASCII to hexadecimal when setting up a WLAN connection. If you have any problems, please use the hexadecimal WEP key to connect your computer to the terminal.

Up to a total of eleven users can access the Satellite Terminal simultaneously through the Ethernet, USB, and WLAN interfaces. For example, a hub or router may be connected to the terminal's Ethernet port, thereby allowing multiple computers to have access (note that if a hub is used, each computer can have its own PDP Context, but if a router is used, then all connected computers must share one PDP Context).

USIM/SIM CARD

The USIM card contains an identity that uniquely identifies a subscriber. The USIM provides storage for subscription and subscriber-related information.

Access to the USIM, and therefore to the BGAN system, can be restricted to an authorized user or number of users, using the USIM Personal Identification Number (PIN). The PIN is stored securely in the USIM.

The USIM personalization feature ensures that access to a terminal or other user equipment can be restricted to an authorized USIM. The USIM and the terminal share a code stored securely in the USIM and the terminal. If a USIM fails to prove its knowledge of the code, it is denied access to the terminal.

If the USIM is removed during operation, the terminal will deactivate any active PDP contexts, detach from the network, and enter a "NO SIM" operational mode. If the USIM is reinserted while the terminal is still powered on, it must be restarted (use the terminal's power button to accomplish this) to detect the new or replaced USIM.

If you change the SIM card, you may need to reconfigure the terminal's ACA settings, e.g., if the APN or username/password are different between the two SIM cards, as this information is stored in each SIM.

BUTTONS

The Satellite Terminal has two buttons:

- The Power button is used for turning the terminal on or off. A long press of the button will either turn it on or off.

- The Audio button is used for switching the audio tones on and off. These tones occur only while the terminal is in pointing mode (see the section **Using the Audio Buzzer** on page 16). Press the button to turn the tones on and off.

- Once you have the terminal correctly pointed to the satellite, you can long press (3-4 seconds) the Audio button to register with the network. You can tell when you are registered with the network when the solid green GPS LED goes out.

INDICATOR LIGHTS (LEDS)

The terminal LEDs indicate the status of the Satellite Terminal. The figures below illustrate where the LEDs are located on the terminal and the function of each.

POWER LED

The Power LED indicates power status:

LED	Status
Off	Terminal is turned off
Green	Terminal is powered on
Flashing Red	Fault detected
Flashing Green	Operating on battery power, or the power button has been pressed and the terminal is powering down.

BATTERY LED

The Battery LED indicates the battery status and functions differently depending on whether the terminal is powered from an external power adapter or from the internal battery:

LED	While on External Power: Status
Off	No battery
Green	Battery fully charged
Flashing Green	Battery charging

Flashing Red	Battery Fault – not charging

LED	While on Internal Battery: Status
Off	Unit is off
Green	Terminal on, in pointing mode
Flashing Green	Terminal on, pointing completed
Flashing Red (fast)	Terminal on, battery low (Power LED is green)
Flashing Red (slow)	Terminal on, battery fault detected (Power LED is also flashing red)

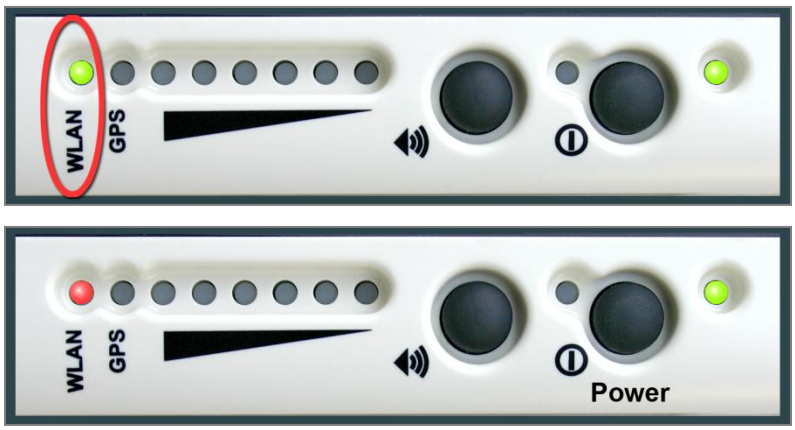
POINTING LEDS

These six, two-color LEDs are used during power-up, Antenna Pointing, and ACA (Automatic Context activation (see ACA Section on page 45 for details).

When the terminal is powered on, the power LED turns green. As the Satellite Terminal progresses through the power-on self tests, each of the 6 pointing LEDs turn green or red/green in turn, and then turn off if the terminal successfully completed power-on self-test. See the **Power-On Self Test** section on page 117 for full details.

These LEDs also indicate the signal quality during antenna pointing - see the **Antenna Pointing section** on page 16 for details).

WIRELESS LAN LED



- This LED is green if the terminal's Wireless LAN is on and Wireless Encryption Protocol (WEP) is enabled.
- This LED is red if the Wireless LAN is on and WEP is disabled.

- If the Wireless LAN is enabled and the terminal is operating on battery power alone, this LED flashes to save power after the unit exits pointing.

GPS LED

The GPS unit in the Satellite Terminal will attempt to get a GPS fix each time the unit powers up. The GPS LED indicates the state of the GPS fix - see the **Obtaining a GPS Fix** section on page 7 for details.

COMPASS

Use the compass during the Antenna Pointing process to point the terminal in the direction of the satellite. The BGAN LaunchPad software can be used to determine the correct direction. North is 0 degrees, East is 90 degrees, South is 180 degrees, and West is 270 degrees, with each division on the compass corresponding to 10 degrees.

☑ **Note**	The compass accuracy can be affected if the terminal is placed close to magnetic fields or ferromagnetic materials.

SOLAR PANEL COMPATIBILITY

The terminal is compatible with several solar panels. The easiest way to interface to a solar panel is through the supplied DC Power Adapter. The output of the DC power adapter is plugged into the terminal, with the input (cigarette lighter adapter) connected to the output of the solar panel.

The terminal has been tested to work with the following solar panels:

- IDG T-60 (3 panels) form IDG Europe (60W max, 3.3A at max power)
- SunCatcher F0001 (2 panels) from Powerline Electronics Accessories (14.5W max)
- 55 Watt Solar West Panel

TERMINAL ACCESSORIES

Terminal accessories include:

- DC Power Adapter
- Extended Battery
- AC Power Adapter
- Cables
- Compatible Devices
- Fixed Installation Kit

Each is described in this section.

DC POWER ADAPTER

The DC power adapter can be purchased through your distributor or supplier. It has an operating temperature range of -25°C to +55°C, and provides an output voltage of 20VDC. It can be used with input voltages in the range 10 to 32VDC.

EXTENDED BATTERY

HUGHES
Lithium-Ion Rechargeable Battery
11.1V 4400 mA-h
HNS P/N 3003702-0001 Rev X2
Assembled in the USA
CAUTION
Do not burn, crush or disassemble
Do not expose to temperatures above 60°C /140°F
Recycle in accordance with local regulations
Charge using Hughes specified chargers only

The Extended lithium ion battery pack can be purchased through your distributor or supplier. The Extended battery pack has the same form factor as the standard battery pack, with 50% more capacity.

AC POWER ADAPTER

The AC power adapter is for indoor use only. It has an indoor operating temperature range of 0ºC to +40ºC, and provides an output voltage of 19VDC.

When the Satellite Terminal is first connected to AC power, the unit powers on automatically. Note that the Terminal will still charge the battery if it is turned off.

CABLES

The Satellite Terminal package comes with a USB cable and cables that provide Ethernet and ISDN connectivity.

- USB cable

- Ethernet/ISDN 10 meter cable

When the Terminal is connected directly to a PC, it uses a regular Ethernet cable (shown above). If the Terminal is connected directly to a hub or router, a "crossover" LAN cable may be required.

FIXED MOUNT KIT

The following items are found in the Fixed Mount Kit. The user is responsible for mounting the hardware to a suitable surface.

- Fixed Mount Screws (anti-theft)

- 30 meter Cord for AC Power Adaptor

This allows the AC Main power adaptor to be located up to 30 meters away from the terminal.

- Ethernet/ISDN 30 meter cable

EXTERNAL ANTENNA

- The external antenna is a 20" x 20" x .5" (500mm x 500mm x 12mm) passive antenna with a 10 meter long cable. It can be mounted permanently using the Fixed Mount Kit accessory.

ISDN Compatible Devices

The 9201 Satellite terminal has been successfully tested with the following ISDN handsets:

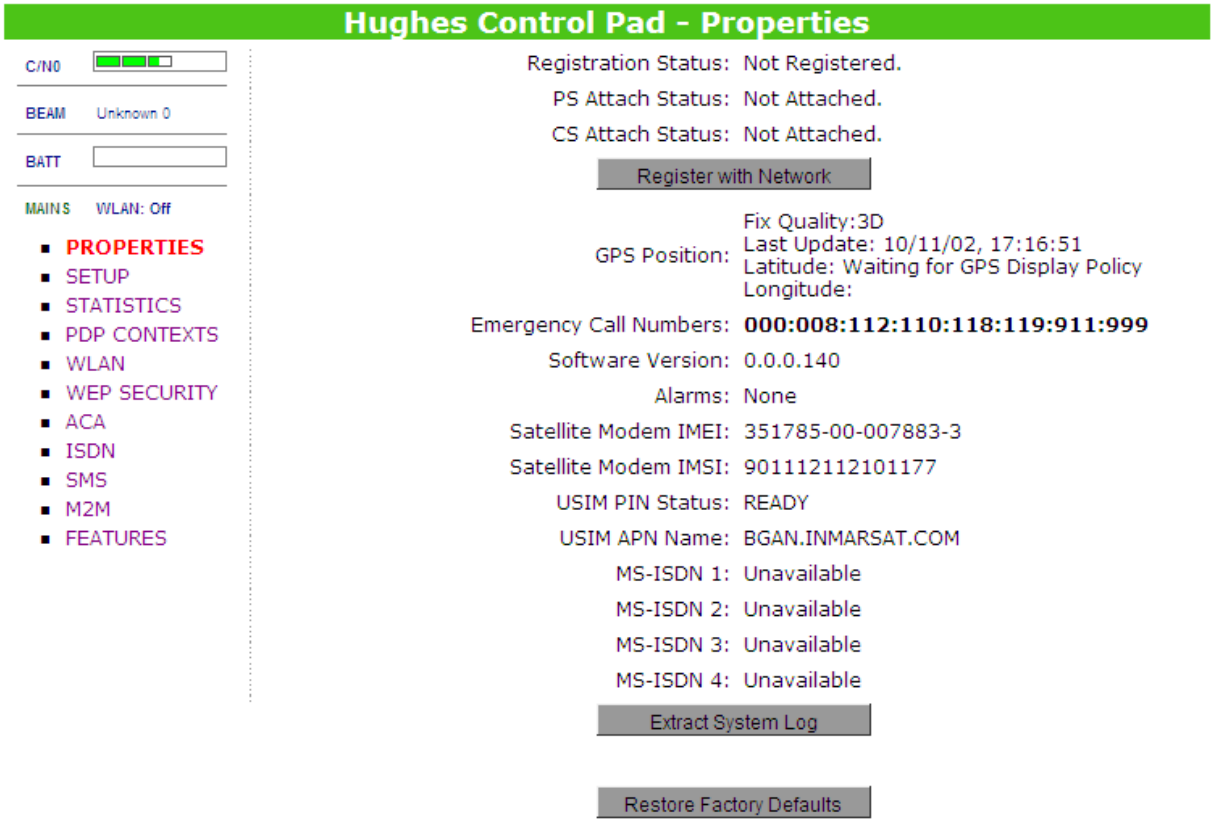
- ASCOM Eurit 33 plus
- SwissVoice Eurit 25
- Nera and Thrane ISDN handsets
- Siemens Gigaset SX255
- Hughes 2-4 Wire terminal adapter using any 2-wire analog handset

ACCESSING THE UT WEB UI

The Hughes 9201 Satellite Terminal (UT) includes its own internal Web User Interface (UI). To access the UT Web UI, open a Web Browser and type in the internal IP address of the UT, i.e., http://192.168.128.100.

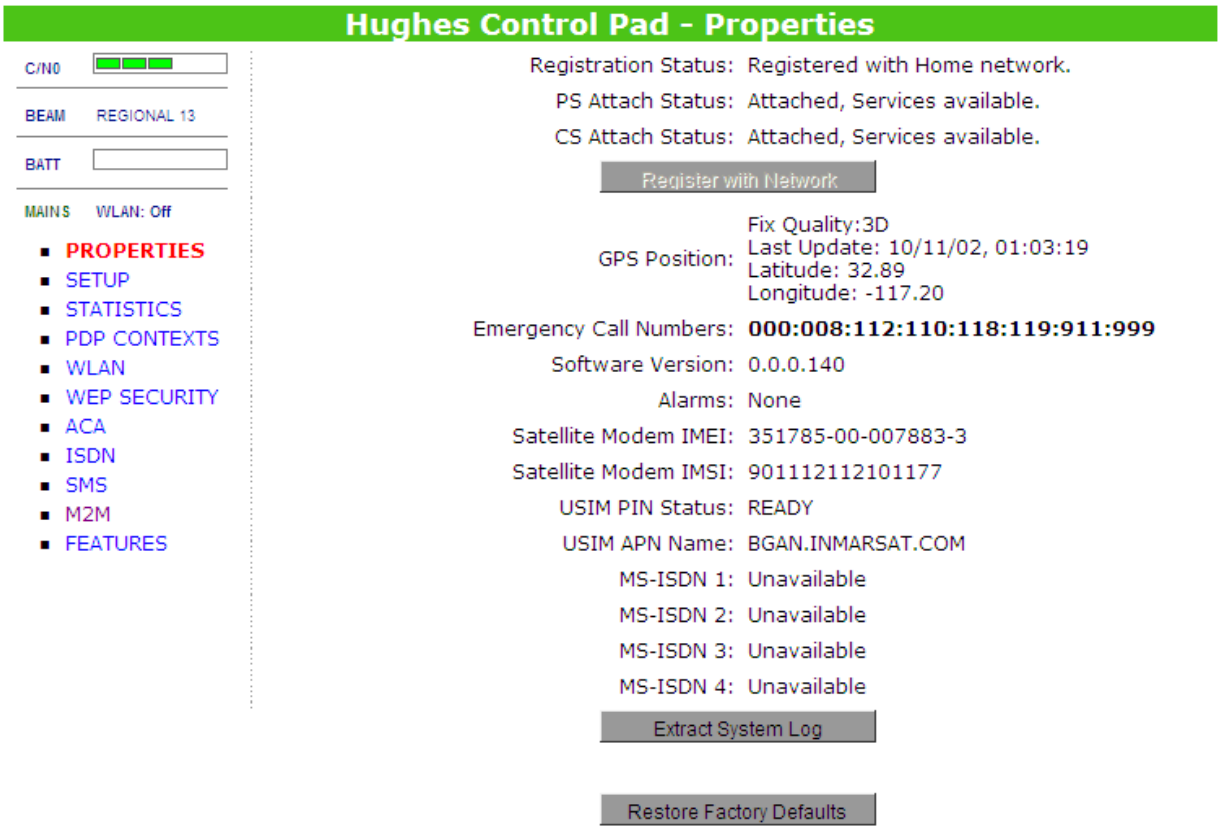
The Web UI is supported on Internet Explorer (7 and 8), Firefox, and Safari. The Status Display shown in the top left corner of the web pages requires Java V1.6 or newer. Note that Firefox sometimes adds a space or a strange character in blank fields. These need to be deleted when configuring a password or username, e.g. on the PDP contexts or ACA pages.

The web UI opens up to the "Properties" page as shown below:



PROPERTIES PAGE

The Properties page shows the current status of the UT. A description of each item on the page follows:



In the Top left-hand corner of the screen you will notice the following Status Display items: Satellite Signal Strength (C/No), Beam ID, Battery/Power status, and Wireless LAN status. These items are updated automatically when the status of any of these items changes.

Below the Status Display is a column of links to the other UT web UI pages (all of them will be described in the following pages). This part of the web page is common to all web pages, and provides for navigation between pages.

The main (center) part of the page shows:

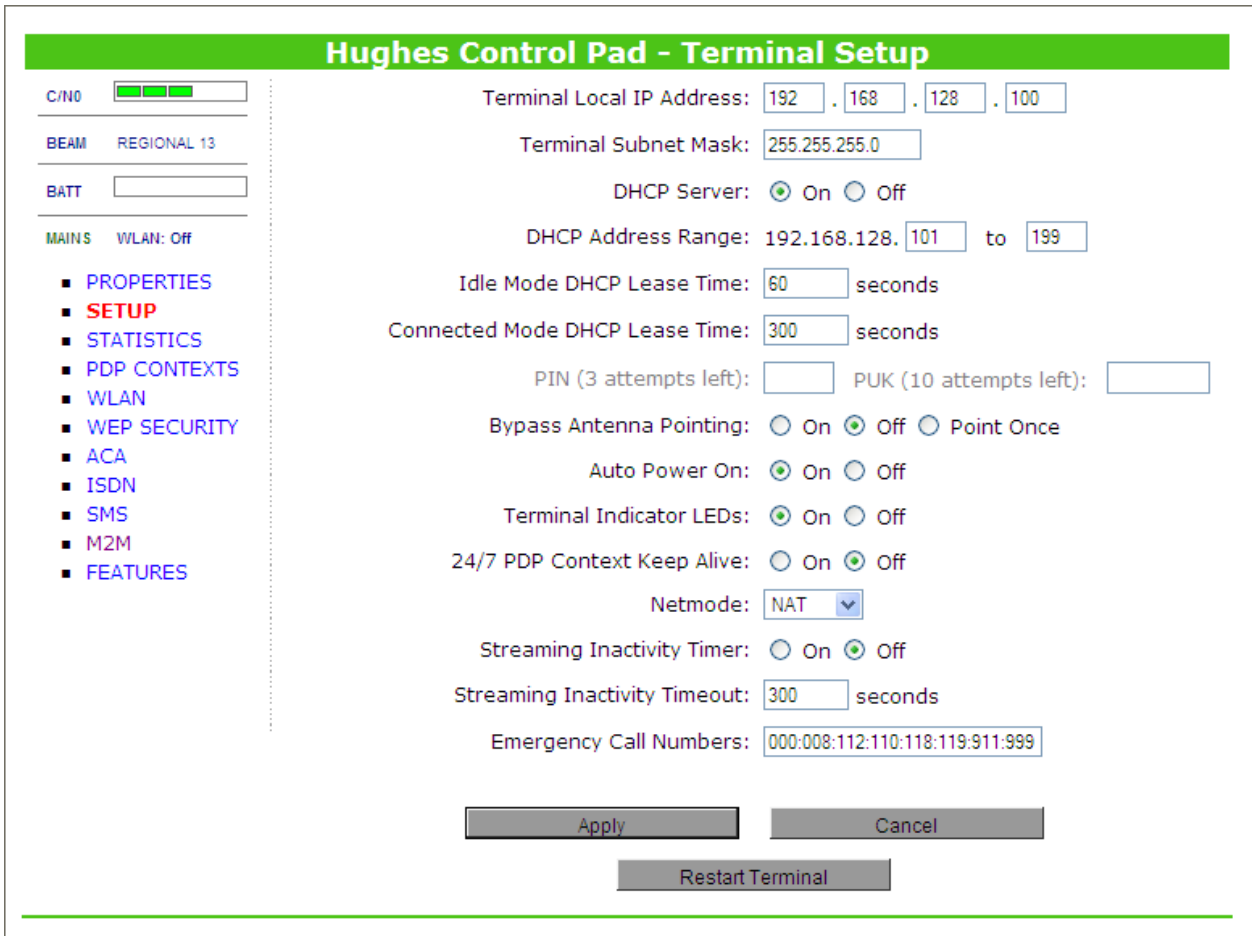
1. **Registration Status**: This field indicates whether you are Registered with the Network. To register, click on the "Register with Network" button. Once the registration process begins or is complete, the button will be grayed-out, as shown above.
2. **PS Attach Status**: This indicates whether you are PS (Packet Switch) attached to the Network. Once PS Attached (and assuming no ACA or Always On functions are enabled), you will then need to setup a PDP Context in order to send PS data.
3. **CS Attach Status**: This indicates whether you are CS (Circuit Switch) attached to the Network. Once you are CS Attached and Registered with the network, you are able to make CS calls.
4. **GPS Position:** This field displays the current GPS position status. If you have received a GPS fix and the Network GPS policy has been received (and it allows the GPS position to

be shown to the user), it will display the Latitude, Longitude, Fix Quality, and the Last time the GPS position was updated. Time displayed is GMT time.

5. **Emergency Call Numbers:** This field displays the Emergency call numbers that can be used with the UT.
6. **Software Version:** This displays the current version of software that is running on the UT.
7. **Alarms:** This displays any current alarms that have been detected by the terminal.
8. **Satellite Modem IMEI:** This displays the IMEI number of the UT.
9. **Satellite Modem IMSI**: This displays the IMSI number of the USIM card in the UT. If the IMSI is not displayed, it indicates that there is a problem reading the SIM card, e.g., because there is no SIM, it is installed incorrectly, or the SIM PIN must be entered.
10. **USIM PIN Status**: This field indicates whether the USIM is ready or the PIN has to be entered. If the PIN needs to be entered, go to the SETUP page.
11. **USIM APN Name:** This displays the default APN that has been provisioned on the USIM card. Note that some USIM cards may have multiple APNs provisioned in them.
12. **MS-ISDN 1 thru 4:** Every USIM card has four (4) separate MS-ISDN numbers (if the USIM has been provisioned for these services). MS_ISDN 1 is for 4K Speech, MS-ISDN 2 is for 3.1KHz Audio (fax, etc.), MS-ISDN 3 is for UDI data, and MS-ISDN 4 is for RDI data. The numbers are shown here if they have been programmed into the USIM.
13. **Extract System Log:** Clicking this button allows the User to automatically extract a UT system log and save the file to a location on the TE for debugging purposes. This file can be e-mailed to Hughes directly for fault analysis if the User experiences any problems. **Note**: if you encounter problems downloading the file, check the firewall and other settings on your PC, such as McAfee Host Intrusion Prevention, as these can sometimes block FTP.
14. **Restore Factory Defaults:** Clicking this button will restore the UT back to factory defaults and delete any of the User parameters that have been set-up in the UT. Hughes highly recommends that the User exhaust all possible debug procedures before using this feature.

SETUP PAGE

The Setup page allows the User to configure various parameters of the UT. Many of the parameters on this page require a restart of the terminal to take effect. A description of each item on the page follows:



1. **Terminal Local IP Address**: This allows the User to change the local IP address of the terminal from the default 192.168.128.100 IP address. All four octets can be changed. Once the local IP address is changed on this page and applied, the IP address ranges for the DHCP server, the PDP Context page, the ACA page, and the M2M page will also be changed automatically. **Note:** Updates to this field will not take effect until the UT is restarted.

   When changing the IP Address, be sure to make a note of the new address, as you will need it to access the UT. (Refer to Trouble Shooting page 127 if you forget the address.)

   After restarting the UT to change the IP address, disconnect and reconnect the TE to allow it to clear and update its IP configuration. You must then enter the new IP address of the UT in the browser to re-access the web UI.

2. **Terminal Subnet Mask**: This allows the User to change the UT subnet mask. For example, if you wish to use a Class B address on the UT, set the subnet mask to 255.255.0.0. **Note:** Updates to this field will not take effect until the UT is restarted.

3. **DHCP Server:** This allows the User to enable or disable the UT's on-board DHCP server. **Note:** Updates to this field will not take effect until the UT is restarted.

4. **DHCP Address Range:** This allows the User to set the range of DHCP addresses that are given out by the UT to any connected TE/DHCP client. **Note:** Updates to this field will not take effect until the UT is restarted.

5. **Idle Mode DHCP Lease Time:** The Idle Mode DHCP Lease Time refers to the DHCP lease time used when the UT is **not** connected to the BGAN network. This parameter allows the User to change the default time (60 seconds) that the DHCP lease to the TE is good for. This parameter was introduced because of a problem with some models of Cisco routers that would not accept a short DHCP lease time. **Note:** The longer the idle mode DHCP lease time, the longer it will take the Network/UT to update the TE with the correct DNS servers for web browsing after establishing a PDP context. Updates to this field will not take effect until the UT is restarted.
6. **Connected Mode DHCP Lease Time:** The Connected Mode DHCP Lease Time refers to the DHCP lease time used when the UT is connected to the network. Most Users will have no need to change this parameter. **Note:** Updates to this field will not take effect until the UT is restarted. Also note the value of the Connected Mode DHCP Lease Time is automatically changed if the User changes the Netmode to Relay Mode (this is done in order to better operate while deactivating a PDP Context while in Relay Mode).
7. **PIN and PUK**: The PIN and PUK fields indicate whether the PIN or PUK needs to be entered to unlock the terminal. When grayed out, they indicate the field is not required or it has already been satisfied.
8. **Bypass Antenna Pointing:** This parameter allows the User to bypass the antenna pointing procedure at startup and have the UT go straight into Registering with the Network. Point Once is another form of pointing bypass and is described in the **M2M Satellite Terminal Point Once Installation Procedure** section on page 20.
9. **Auto Power On:** This parameter is set when the User wants the UT to power up automatically when AC/DC power is applied to the UT (instead of having to press the power button).
10. **Terminal Indicator LEDs:** Determines whether the indicator LEDs on the terminal are on or off by default. Typically this should be set to on, but if the unit is installed outdoors you may want to turn off the LEDs to make the unit less noticeable.
11. **24/7 PDP Keep Alive:** If this option is enabled, the UT will automatically request another PDP context if the current PDP context is torn down due to inactivity. This is an older-style capability of the terminal: the Always On PDP context with keep alive (configured on the M2M web page) may be a better option. **Note:** The 24/7 function should not be enabled unless you need to keep the PDP context alive for critical information. Enabling this function is not a good use of satellite resources. Updates to this field will not take effect until the UT is restarted.
12. **Netmode**: This field indicates the mode of operation of the terminal. In NAT mode the UT will translate between the local and global IP addresses. In Relay mode the UT will supply the global IP address to the TE once a PDP Context is established. Relay mode is single user/single PDP Context and only supports a single connected TE (see NAT vs Relay Mode section on page 86 for details). **Note:** Updates to this field will not take effect until the UT is restarted.
13. **Streaming Inactivity Timer:** When enabled, this allows the terminal to utilize a timer that can detect inactivity for a Streaming QoS that has been setup.
14. **Streaming Inactivity Timeout:** When the Streaming Inactivity Timer function is enabled, the value of the timeout denotes how much streaming inactive time (in seconds) must elapse before the UT automatically tears down the streaming context.
15. **Emergency Call Numbers:** Allows the User to update the emergency call numbers that are applicable in the part of the world where the terminal is being used.
16. **Apply, Cancel, and Restart Terminal buttons:** These buttons are self-explanatory. Once any desired change has been made to a field on this page, click the Apply button. As mentioned earlier, a restart of the terminal may be required for the applied change(s) to take effect.

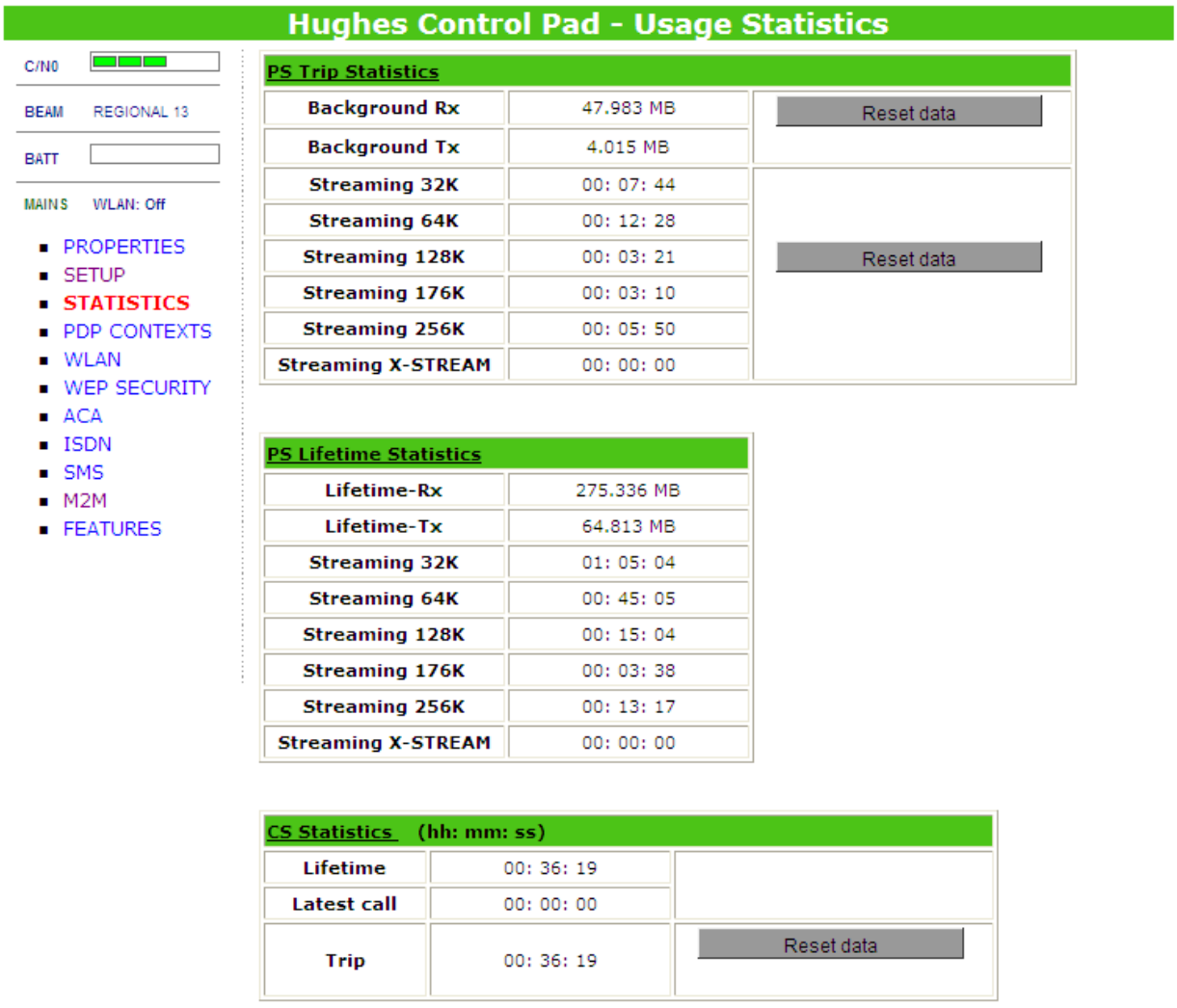
STATISTICS PAGE

The Statistics web page provides an estimate of the amount of Packet Switched data sent and received on background PDP Contexts, the time elapsed for streaming contexts, and the time elapsed for CS calls. The data is broken up into the following types:

Trip: The trip counter is similar to the trip counter on your vehicle. It can be zeroed out at any time by the User, and it will track the statistics until the User resets it.

Lifetime: The Lifetime counter is similar to the odometer on your vehicle. It shows the statistics of the terminal since the software version that added this feature was loaded onto the UT. The User **cannot** reset these counters.

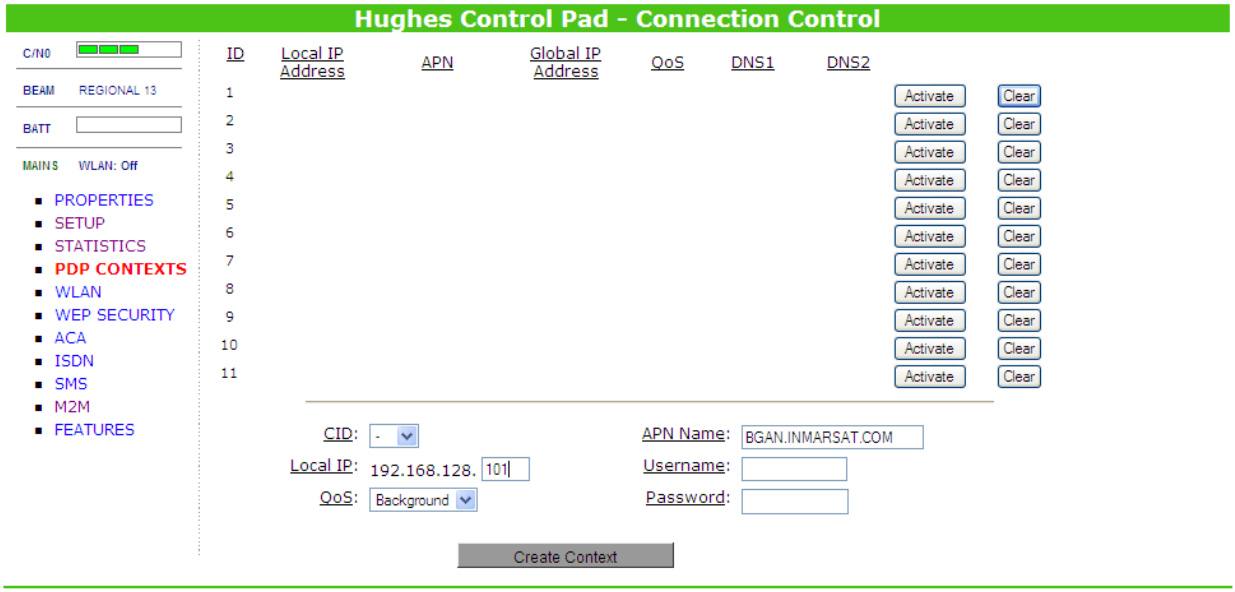
CS Statistics: The CS statistics relate to calls placed by/received by the terminal. These also include the time of the latest call.



Note: If the UT power is abruptly disconnected for some reason, the UT will not be able to save the statistics to flash and hence the statistics for the session may be inaccurate.

PDP CONTEXTS PAGE

The PDP Contexts page allows the User to setup and configure PDP Contexts for any TE that is connected (or even not connected yet) to the UT. To activate a PDP Context, go to the bottom of the page. You will see the CID (Context ID), Local IP Address, Requested QoS, APN, Username, and Password fields:



1. **CID:** The CID (Context ID) of each context is automatic by default. If for some reason the User wants to assign a particular context to a specific CID, use the drop down arrow and select the desired CID number. Most users will **not** need to change this field from the automatic/default setting.
2. **Local IP:** This is the local IP address of the TE that you want to setup the PDP Context for. The TE IP address is automatically filled in based on the IP Address of the computer currently connected to the Web UI. Note that the first three octets of the IP address will reflect any changes made (on the Setup web page) to the UT local IP address.
   You can use the "ipconfig" command from a "cmd" (DOS prompt) window on your PC computer to find the IP address of your computer (note: this will also give you the "Gateway" IP address of the UT (assuming "Obtain an IP Address Automatically" is set for the computer's network connection to the terminal)). To determine the computer's IP address on a Mac, for Mac OS X, under the Apple Menu go to "System Preferences" -> "Network" and Show "Built-in Ethernet" or "Airport". The IP address is under TCP/IP. Alternatively, go to "About this Mac" -> "More Info" -> "Network" and select "Built-in Ethernet" or "Airport".
3. **QoS:** The drop down list shows all of the different QoS types supported: Background, 32K, 64K, 128K, 176K, 256K, and X-Stream. Select the appropriate QoS required for the PDP context that you are setting up. Note that the look-angle (elevation setting once properly pointed) of the terminal may limit your ability to successfully use higher QoS rates.
4. **APN name:** This field is configurable, but it will always show the default APN that has been provisioned on the USIM. If you have a USIM that has been provisioned with multiple APNs, you can type in any of these other APN names here, if desired.

5. **Username (UN)/Password (PW):** Some Service Providers require a Username and Password to be used when setting up a PDP Context (this is often required when using Static Global IP addresses assigned by the Service provider). Provide those values here.

Activating a PDP Context:

To activate a PDP context, perform the following:

Do not modify the CID field unless you need to setup a specific ID for one of your devices. Leaving it blank will allow the software to automatically choose the next CID that is available.

Next, enter the local IP address of the device that you want to setup the connection for.

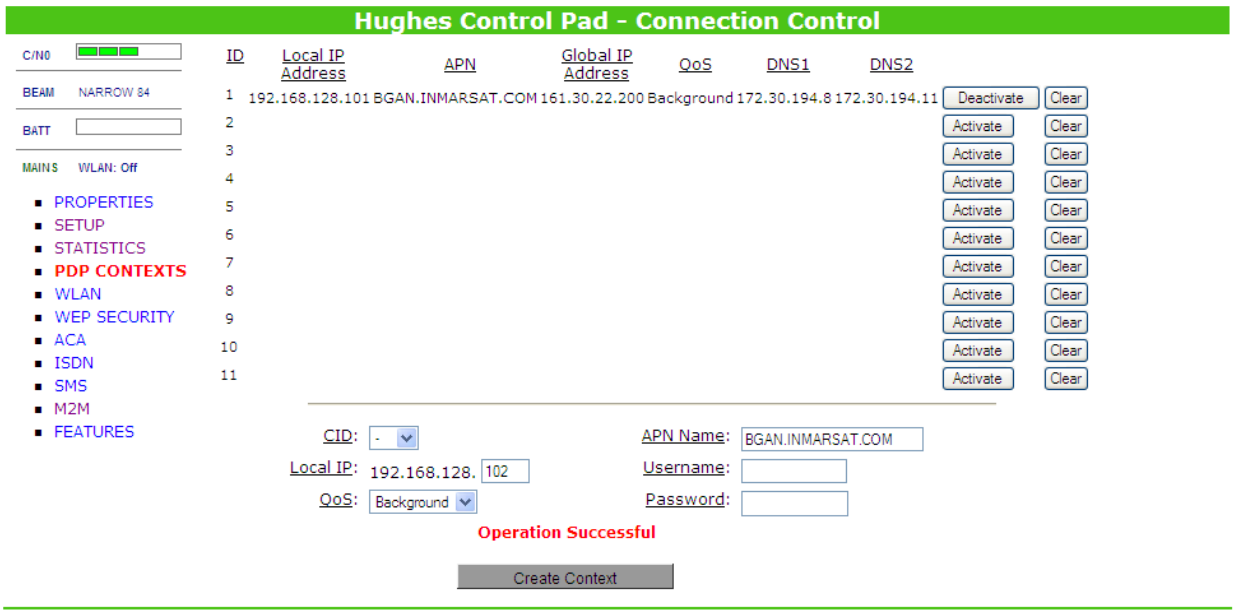
Next, select the QoS that is needed by selecting it from the drop down list.

The APN is read from the USIM card and is usually not changed unless you have more than one APN provisioned on the USIM card.

If your Service Provider requires a username or password, enter it in the Username and Password boxes, then click on "Create Context".

The new connection will show up in the connection table (see screen shot below for example).

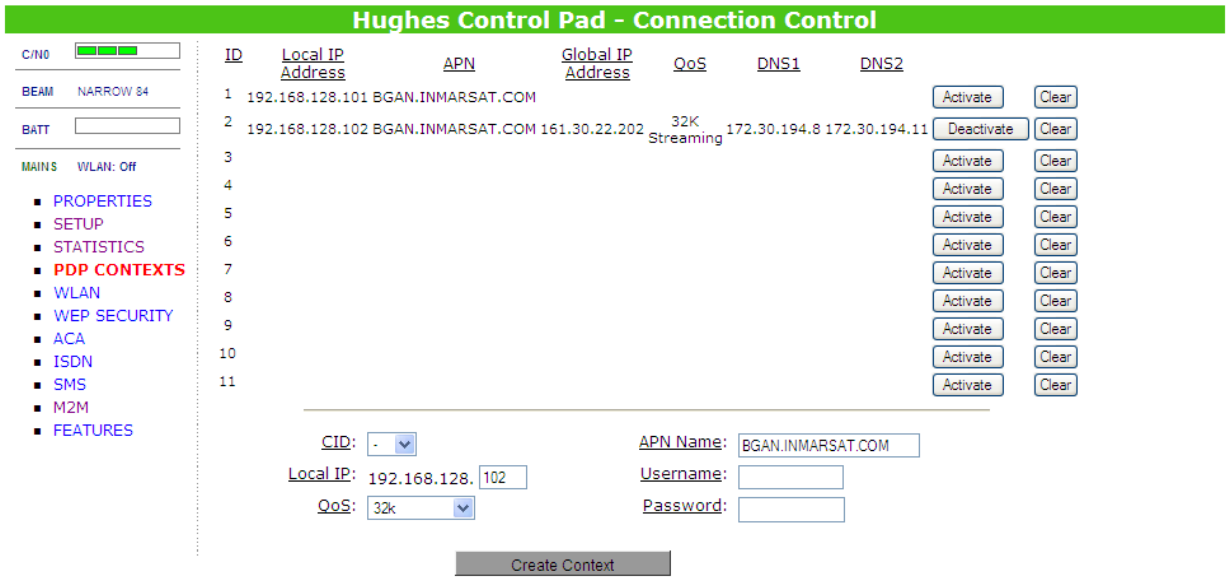
Note: In Relay Mode you can only have one context, and it must be configured to use CID 1.



Background Context activated for 192.168.128.101

Once the context has been setup, whether it is successful or not, the context field/row in the table will always be populated until you click on the "Clear" box. This allows you to be able to retry/re-activate using the existing context parameters (see CID #1 below).

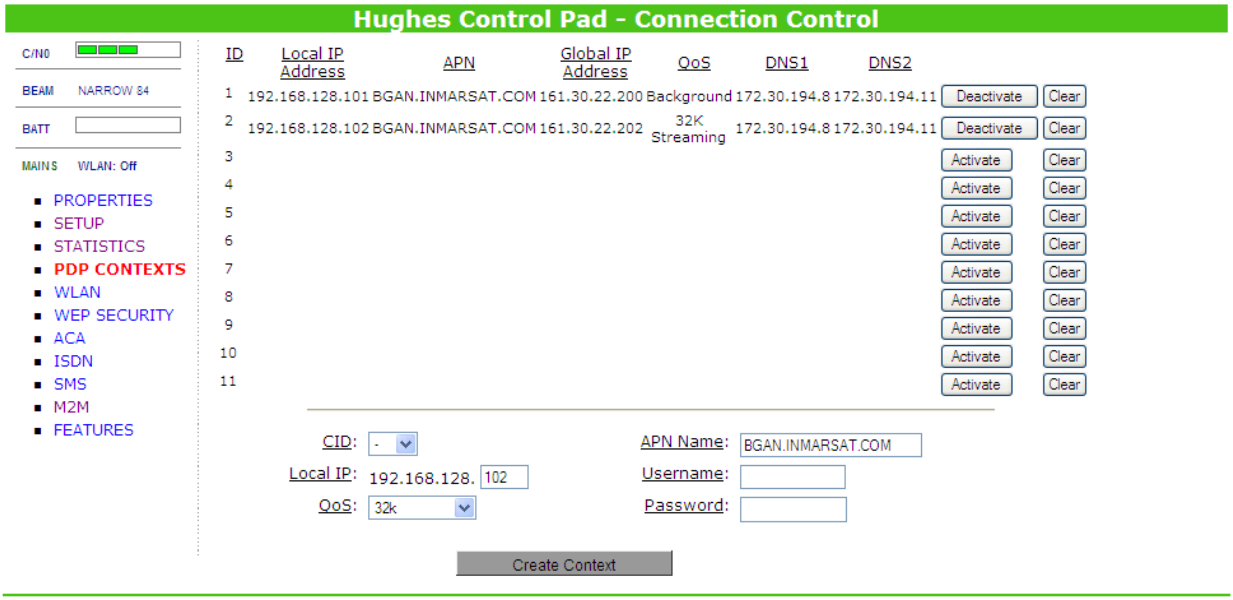
You can tell if a context is active by looking to see if the Global IP Address and DNS fields are populated on the context's row in the table. If they are populated, the context is active.



PDP Contexts Page Example: CID #1 Inactive; CID #2 Active

Activating Multiple PDP Contexts

To activate multiple PDP contexts for additional TE devices, follow the same procedures above. Each time you activate a context for a particular local IP address, it will show up in the table similar to the screen shot below.



WLAN

The Wireless LAN web page allows the User to enable, disable, and configure the Wireless LAN functionality of the terminal. Note that Wireless LAN Security is controlled on a different web page.

Connecting by WLAN

If you have not previously used the terminal's WLAN interface, it has to first be enabled from the web UI with a computer connected to the terminal using a wired (Ethernet or USB) interface. Once enabled/configured, TEs can connect to the terminal wirelessly.

Fields on this page include:

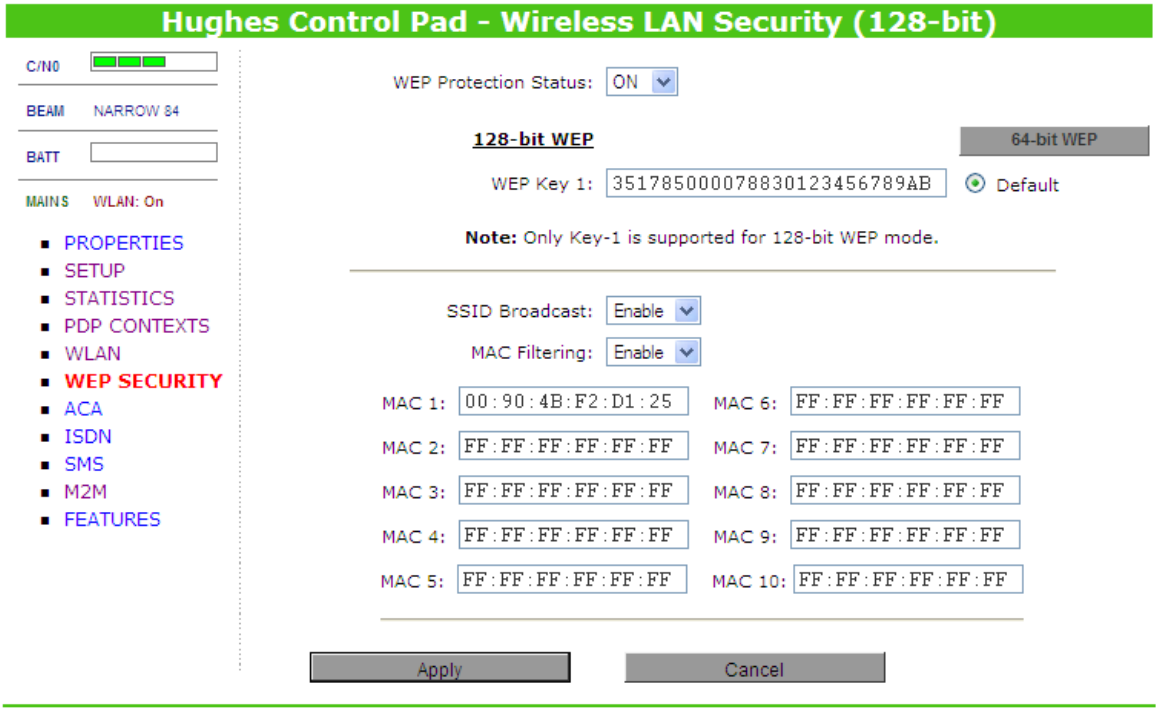
- **WLAN Power:** Turns the Wireless LAN interface on/off. The default is off (disabled).
- **SSID:** Network (SSID) name. The default is "BGAN", but you can change it to whatever you want. Note that you can "hide" the SSID on the WEP Security page.
- **Region:** This defines the geographical region in which you are operating the UT. Based on your selection, the Channel choices in the "Channel" parameter will be restricted.
- **Channel:** WLAN Channel number. This controls the radio channel number (1-14) used by the access point. Depending on the country you are in, only certain subsets of these channels may be used (7 options: FCC (USA), IC (Canada), ETSI (most of Europe), Spain, France, and 2 options for Japan). Channel 11 is common to almost all countries, so it is used as the default. Note that if performance issues occur over the WLAN interface, changing the Channel may help.

WEP SECURITY

The Wireless LAN Security page allows the User to configure WEP for use when the terminal is communicating wirelessly to TEs. Note that WEP is the only form of wireless encryption offered on the terminal at this time.

Fields on this page include:

- **WEP Protection Status:** Select "On" from the drop down list to enable the Wireless Encryption Protocol (WEP) for added security. When the terminal's WLAN interface is enabled, the WLAN LED is either green (WEP is enabled) or red (WEP is not enabled). When the LED is red, any computer with a WLAN interface can detect the terminal's WLAN SSID, and connect to it automatically. Therefore, it is recommended that WEP Security be configured/enabled.



- **Encryption Level:** 64- or 128-bit WEP Encryption can be enabled. To switch from one level of encryption to another, click the button in the upper-right corner of the page.
- **WEP Key 1:** Default WEP keys are formulated using the IMEI number of the terminal. If you want to use different WEP keys, please use the following table as a reference when entering the new WEP keys:
    - Hexadecimal 128-bit: Requires 26 characters. **Recommended**
    - Hexadecimal 64-bit: Requires 10 characters
      (When using 64-bit WEP Encryption, additional WEP Keys appear on the page)

  Note: If WEP is enabled, you must provide other WLAN users with the proper WEP key in order for them to connect to the terminal wirelessly.

  SSID Broadcast: For added security, you can choose to not broadcast the terminal's WLAN SSID. **Note**: this feature does not work with older 9201 units equipped with the Agere Wireless LAN card. These units are marked MCN 3003920-0001).
- **MAC Filtering:** For added security, click on ENABLE from the drop down list and then you can define up to 10 selected MAC addresses that are allowed to connect to your WLAN.
  Note: To find out the MAC address of a PC, go to a DOS prompt and type "ipconfig /all". For Mac OS X, under the Apple Menu go to "System Preferences" -> "Network" and Show

“Airport”. The “Airport Id” is the MAC address. Alternatively, go to "About this Mac" -> "More Info" -> "Network" and select "Airport"."

ACA

Automatic Context Activation, or ACA, is a function where the 9201 terminal can detect the presence of TE(s) at startup, and based on configuration set on the ACA web page, the terminal can automatically create and activate PDP Context(s) as specified (no manual creation is needed on the PDP Contexts web page in this case). In addition, the context(s) can be configured to activate only upon the presence of data from each TE.

The ACA web page allows you to configure the Automatic Context Activation function based on **two** different kinds of TE IP connections to the terminal:

1. If using a static IP address on the TE, you can establish an automatic (ACA) PDP context with any QoS that is offered by the network (refer to the upper half of the ACA web page).
2. If using DHCP on the TE ("Obtain an IP Address Automatically"), you can establish an automatic ACA background PDP context for any TE that connects to the UT via DHCP (refer to the lower part of the ACA web page). Note that streaming QoSs are not supported when ACA is used for DHCP clients (hence the function is referred to Dynamic Background ACA on the web page).

In either case, you can also choose whether the context should be activated as soon as the UT detects the device ("on" or "off" in the web page settings), or if the context should only be activated when the TE attempts to send data over the satellite link ("DA" in the web page settings, which stands for "data activated"). Note that with Data Activated contexts, if the context is ever deactivated, it will automatically be reactivated when more data is sent.

The UT must be restarted before it will automatically activate contexts for newly-configured ACA entries.

Note: If you change the SIM card, you may need to reconfigure your ACA settings, e.g., if the APN or username or password is different between the two SIM cards.

Fields on this page include:

- **ACA Settings for TEs with Static IP Addresses:** You can define your own range of static IP addresses for setting up an automatic ACA PDP context with any of the QoSs offered by the network. In this way, when a TE connects to the terminal using any IP address in the range, a PDP Context for it will be setup using the QoS specified.

  To turn on a particular range of addresses, select the "On" radio button and choose a range of addresses (low and high) to use (e.g., 192.168.128.200 to 192.168.128.209), or leave the defaults. To have the context only be activated when the TE sends data, select "DA" instead of "On".

  Next, select the desired QoS for that range of IP addresses (32K streaming, 64K streaming, etc).

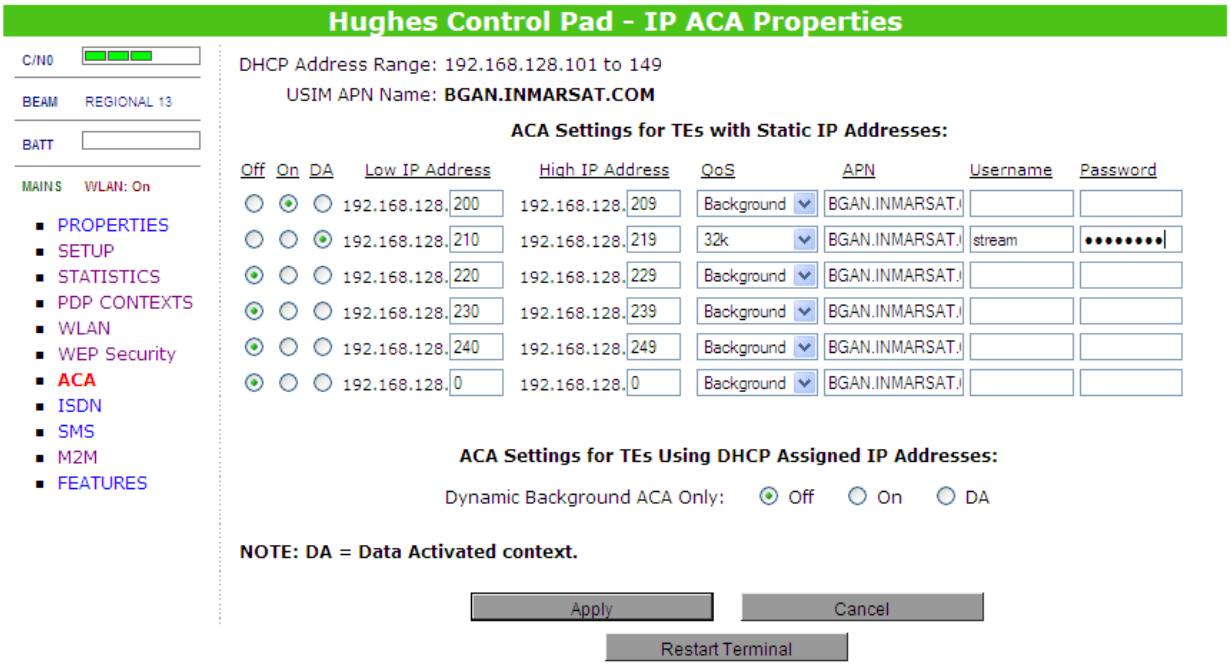
  The APN listed is the default APN read from the USIM card (bgan.inmarsat.com). If your USIM is provisioned for more than one APN, then you can enter a different APN in this field.

  If your Service Provider requires a username and password, enter them in the next two fields.

  If you want to setup additional ranges of addresses, follow the same instructions as above.

  Note: You cannot overlap the IP address ranges. If you do, an error will pop-up telling you that you have an overlap region. Check all of the ranges for overlaps and try again.

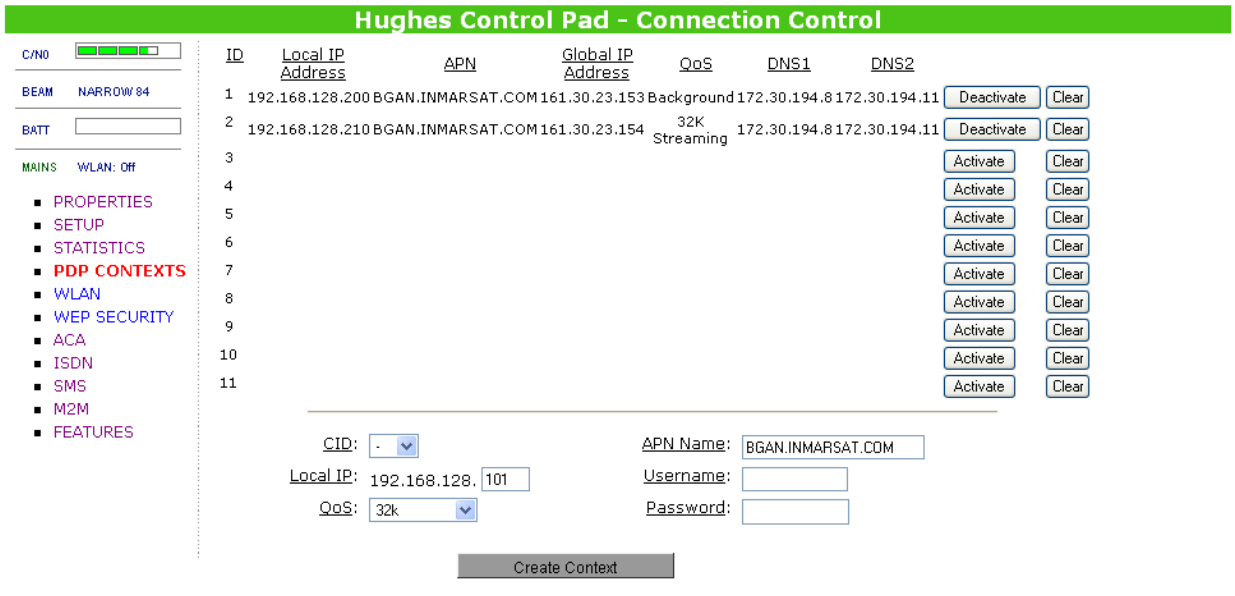
  When you are finished, click on "Apply" and you should see a message saying "Operation Successful". A restart is needed for the changes to take effect.



- **ACA Settings for TEs Using DHCP Assigned IP Addresses**: This option allows you to set up the UT for Dynamic Background ACA. This means that any device configured to connect to the terminal via DHCP will automatically receive a background PDP context.

  To activate this feature, select the "On" radio button **and click on "Apply".** To have the context only be activated when the TE sends data, select "DA" instead of "On".

To see if the ACA context(s) have been setup properly, restart the terminal and ensure the TE(s) desired for ACA operation are connected to the terminal. Next, click on the PDP Contexts web page, and it will show you all the contexts that have been setup (active or inactive). See the screen shot below as an example.



ISDN

You can establish ISDN data communication by connecting your ISDN equipment directly to the BGAN Terminal's ISDN port with the supplied ISDN cable (which is the same as the Ethernet cable). This web page allows you to activate 40V power sourcing on the ISDN interface, and set MSN numbering options.

1. **ISDN Power Sourcing:** To turn on the ISDN power sourcing click on the "On" radio button. The ISDN device should receive 40V power immediately via the ISDN cable. This field should be on unless you never use ISDN or are using an ISDN device that has its own power source.
2. **MSN Speech:** By default, MSN 1 is entered into the MSN Speech number text box. To receive incoming calls, you must program the same MSN into your ISDN handset connected to the ISDN port.
3. **MSN 3.1 KHz audio:** By default, MSN 2 is entered into the MSN 3.1 KHz Audio number text box. To receive incoming calls, you must program the same MSN into your ISDN fax machine connected to the ISDN port.
4. **MSN UDI (Unrestricted Digital Information):** By default, MSN 3 is entered into the MSN UDI text box. UDI is a 64 Kbps service that is a European standard ISDN data service.
5. **MSN RDI (Restricted Digital Information):** By default, MSN 3 is entered into the MSN RDI text box. RDI is a 56 Kbps service that is normally found in the USA.
6. **Trigger for Mobile-Originated call type (Bearer):** This box controls the mechanism used by the terminal to select the bearer type for mobile originated calls. By default, "Bearer capability" is set as the trigger in this text box. There is also an option under the drop down arrow to set the trigger to use the MSN rather than the bearer. Most ISDN devices correctly signal the call type (speech, 3.1KHz audio, UDI, RDI) via the bearer capability. If there is a problem, this field can be changed to use the MSN number instead.

Once all changes have been made, click on "Apply". Any changes to this screen require a re-boot of the terminal to save the new configuration. Use the power button on the UT or the "Restart Terminal" button to gracefully power down and power back up the UT.

Note: You can use different MSNs for any of the ISDN call types above, but your ISDN equipment must be programmed with the same MSN to accept incoming calls, and you must use different numbers for speech, audio and UDI/RDI calls.

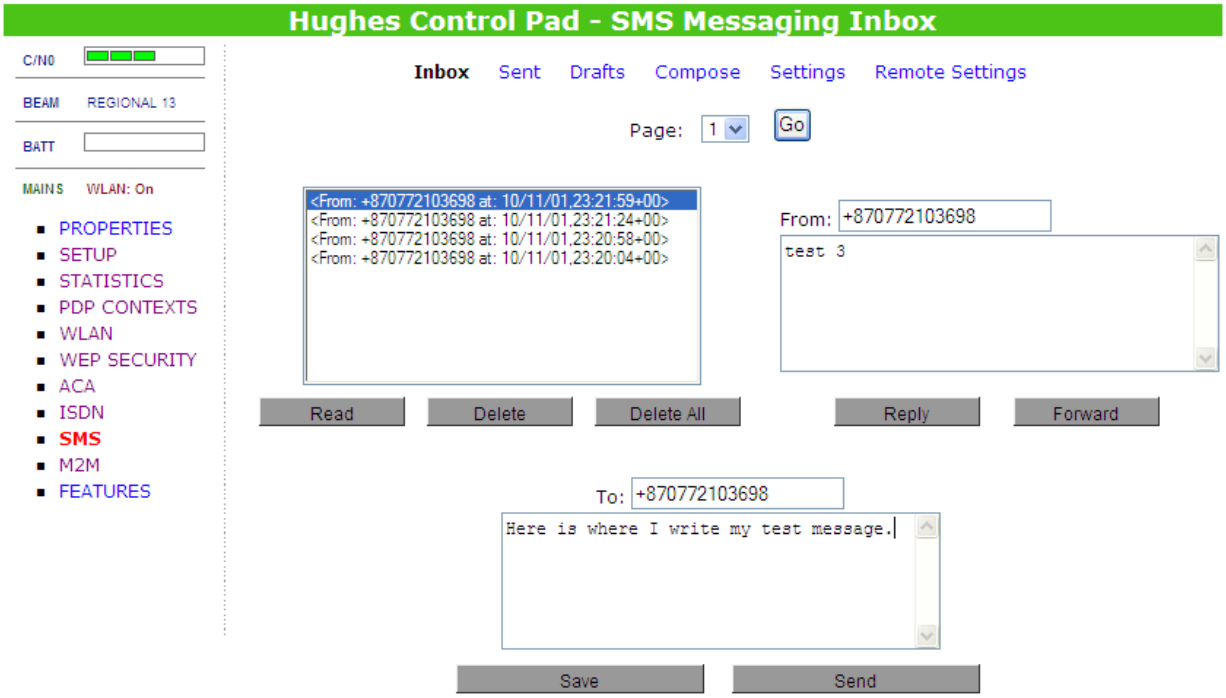
SMS

You can manage SMS text messages from the SMS pages which provide a similar function to LaunchPad. You must have a valid Service Center number configured in order to send messages – see the SMS Settings Page.

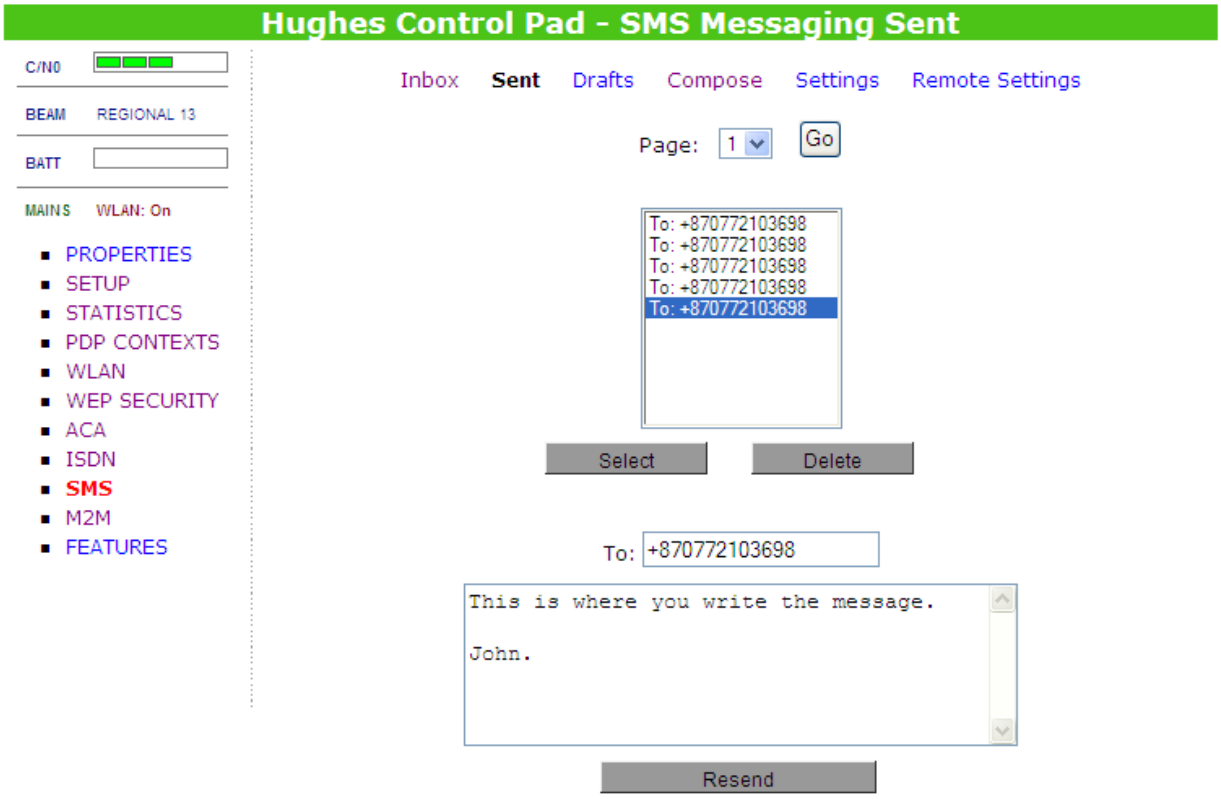
On the **Inbox** page you can view your received messages. If there are more than 10 messages, you can view the older ones by changing the page number and pressing Go. You can also reply to messages or forward them.

You may need to periodically delete messages to prevent the SIM from filling up which will prevent the receipt of new messages. You can select a single message and press the "Delete" button, or use the "Delete All" button which deletes all received, sent and draft SMS messages.

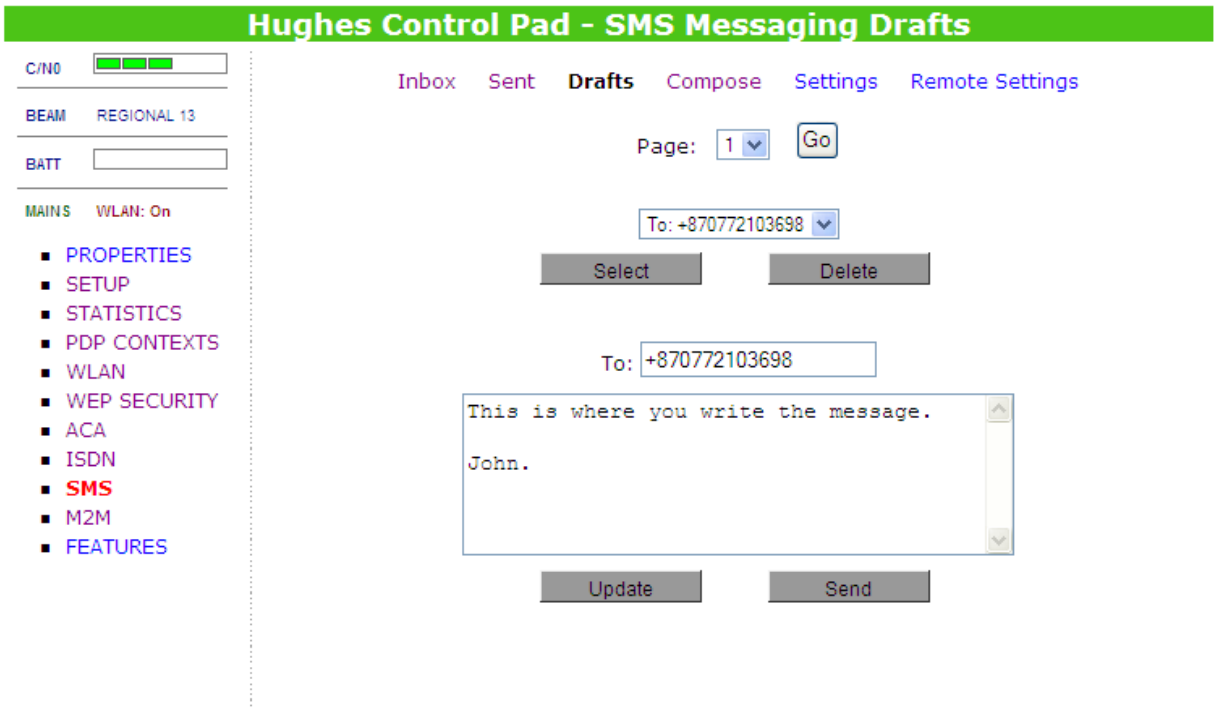
After entering a message you can save it to drafts rather than sending it by pressing the "Save" button.



The **Sent** page allows you to view previously sent messages. Again, you may need to periodically delete messages to prevent the SIM from filling up.

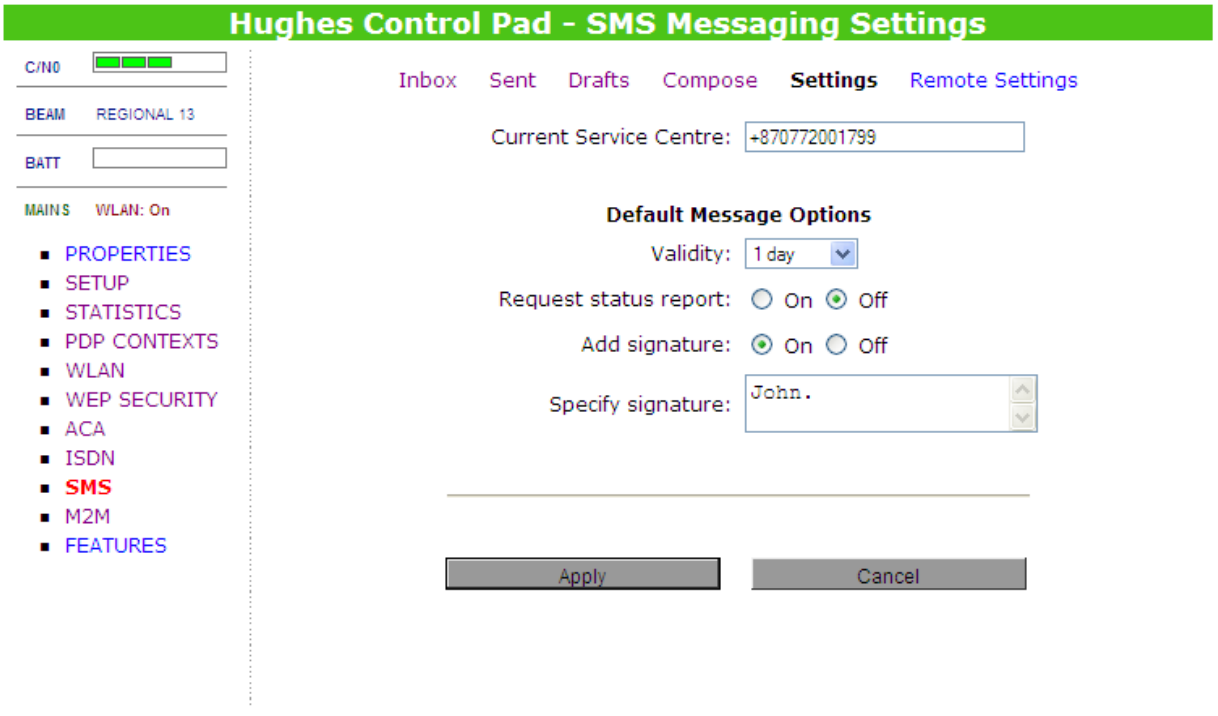


The **Drafts** page allows you to view previously saved messages. After editing a message you can resave (Update) or send the message.



On the **Compose** page you can write new messages. After entering a message you can save it to drafts or send it.

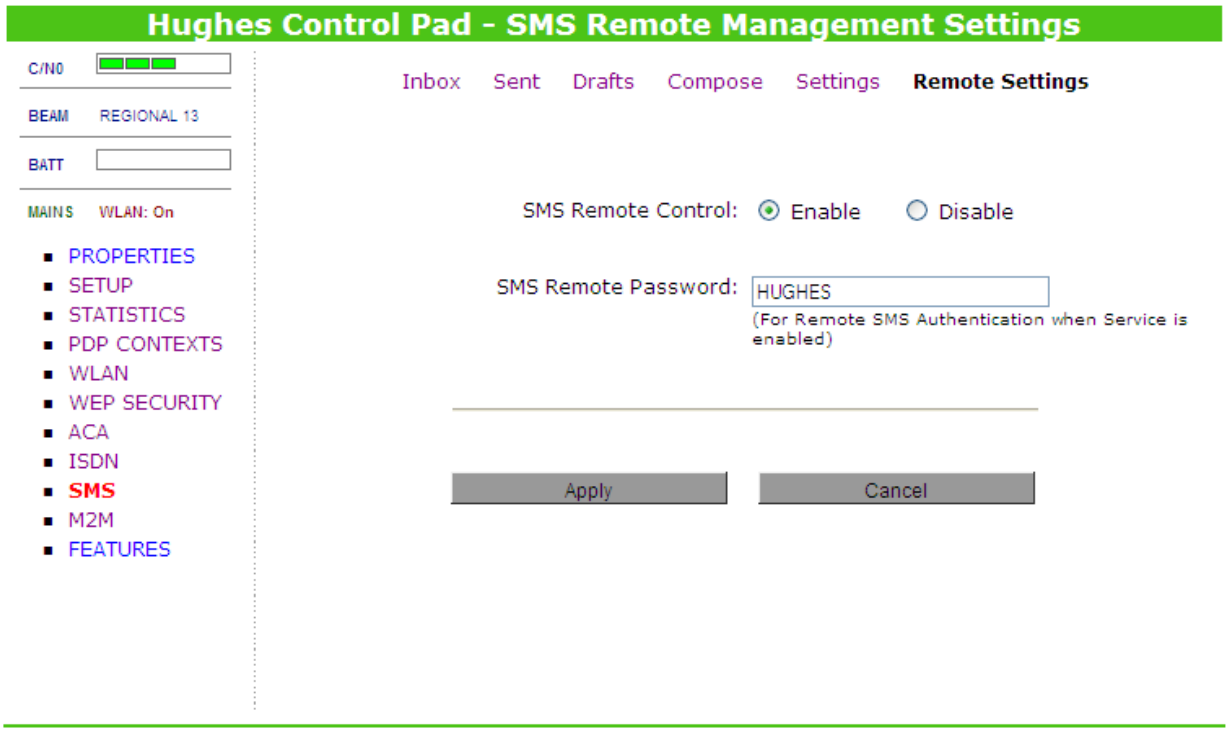
On the **Settings** page you can configure the default settings for messages. You must have a valid Service Center number configured in order to send messages.



On the **Remote Settings** page you can enable the unit to receive and act on special remote control SMS messages. Contact your service provider for more information on this feature. Before this feature can be enabled you must obtain the feature activation code from your service provider and activate the feature from the Features Web page.

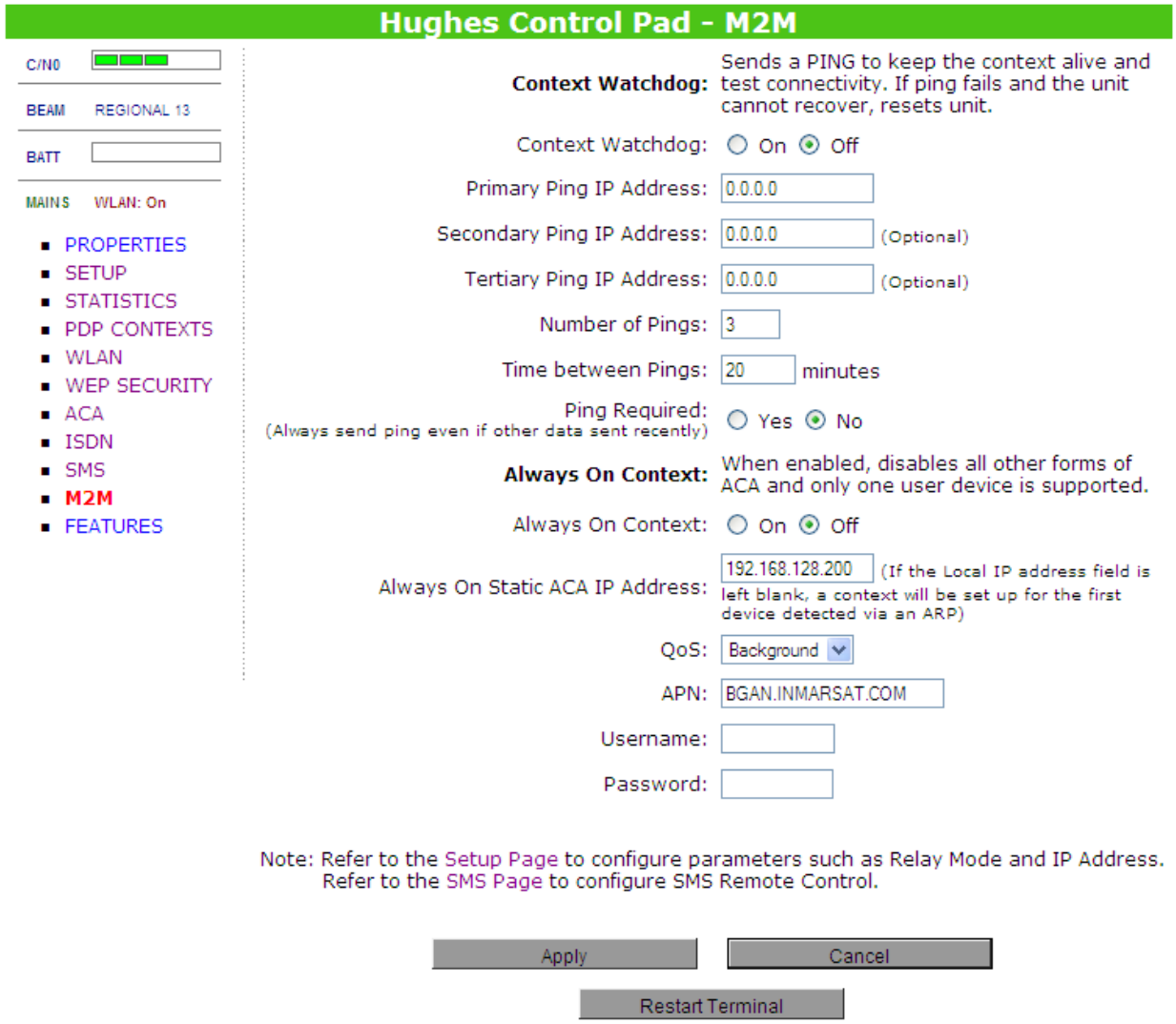
You can configure the password that must be contained in remote control SMS messages. Be sure to make a note of the password if you change it from the default. **Note**: If you activate this feature and do not change the password, it is possible that other people may be able to send control messages to your unit.

Remote control messages will be deleted after they are received and will not be stored in the SIM.



M2M

The M2M page allows you to configure features specially designed for unattended units, e.g. units used for Machine to Machine applications such as SCADA.


Hughes Control Pad - M2M
C/N0
BEAM REGIONAL 13
BATT
MAINS WLAN: On
PROPERTIES
SETUP
STATISTICS
PDP CONTEXTS
WLAN
WEP SECURITY
ACA
ISDN
SMS
M2M
FEATURES
Context Watchdog: Sends a PING to keep the context alive and test connectivity. If ping fails and the unit cannot recover, resets unit.
Context Watchdog: On Off
Primary Ping IP Address: 0.0.0.0
Secondary Ping IP Address: 0.0.0.0 (Optional)
Tertiary Ping IP Address: 0.0.0.0 (Optional)
Number of Pings: 3
Time between Pings: 20 minutes
Ping Required: (Always send ping even if other data sent recently) Yes No
Always On Context: When enabled, disables all other forms of ACA and only one user device is supported.
Always On Context: On Off
Always On Static ACA IP Address: 192.168.128.200 (If the Local IP address field is left blank, a context will be set up for the first device detected via an ARP)
QoS: Background
APN: BGAN.INMARSAT.COM
Username:
Password:
Note: Refer to the Setup Page to configure parameters such as Relay Mode and IP Address.
Refer to the SMS Page to configure SMS Remote Control.
Apply
Cancel
Restart Terminal

Context Watchdog: If you need the unit to maintain a PDP context at all times, use the Context Watchdog feature.

- **Context Watchdog** To detect problems and auto recover, set this field to On.
- Configure one or more **Ping IP addresses** that can be pinged by the UT over the satellite link. For example, use DNS server IP addresses.

  Note that at least one address must be provided if this feature is enabled, but setting two or three addresses may help if there is difficulty reaching the first address.
- **Time between pings**. Set this parameter to control the interval at which the UT will check the link. The minimum value is 5 minutes.
- If the **Ping Required** field is set, the UT will always send the pings at the ping interval. If the field is not set, the UT will not send pings if data was successfully sent within half the ping interval. This setting reduces the number of pings sent over the air.

Always On Context: To have the unit automatically set up a context on power up, set Always on Context to On. The UT will set up the context at startup and reactivate it if it is ever deactivated.

- If the TE has a known **static IP address** or never ARPs, enter this address. Alternatively, leave the IP address blank (0.0.0.0) and the UT will set up a context for the first device it detects through ARP during startup.
- The **QoS** should be left as Background. Setting a steam QoS should only be used in exceptional circumstances where a stream is required the whole time the unit is powered on.
- **APN** will be filled in with the default value in the SIM but can be changed if necessary.
- Fill in the **Username** and **Password** if required for context activation.

If you change the SIM card you may need to reconfigure your Always On Context settings, e.g. if the APN or username or password is different between the two SIM cards.

For static units that are installed once the Point Once option on the Setup page is recommended.

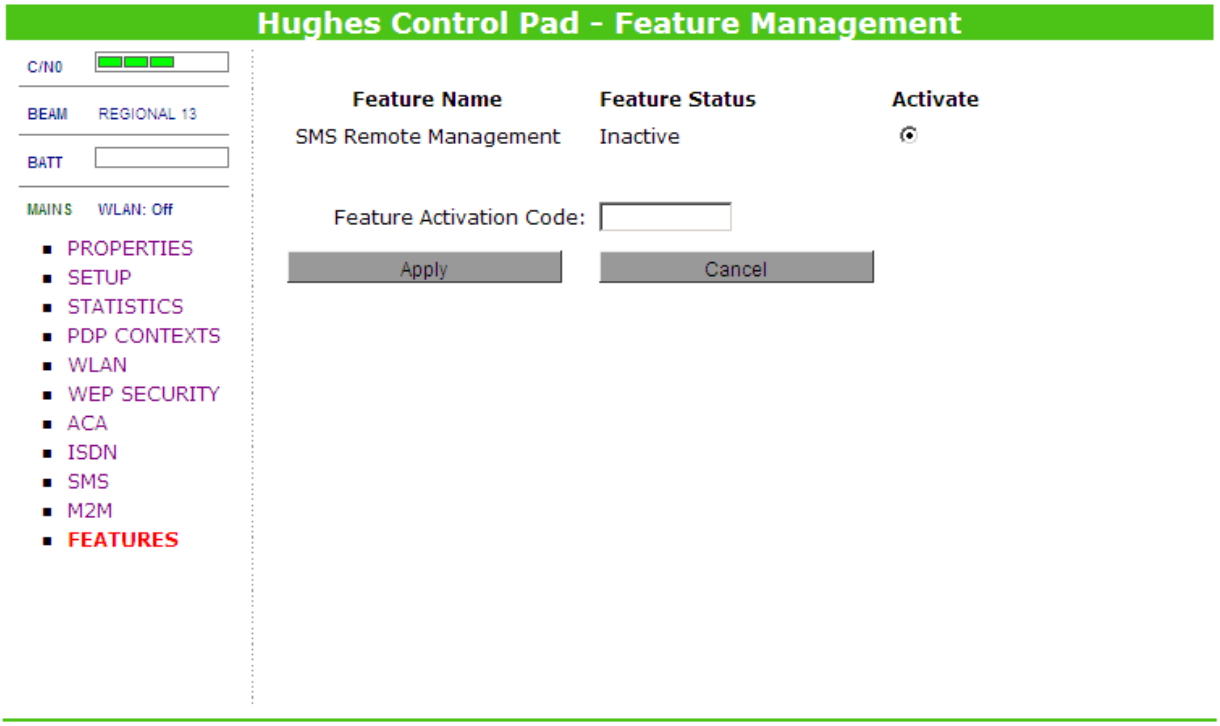
To control the unit remotely, use the SMS Remote Control feature – see the Features page and SMS Remote settings.

FEATURES

You can enable special features from this page.

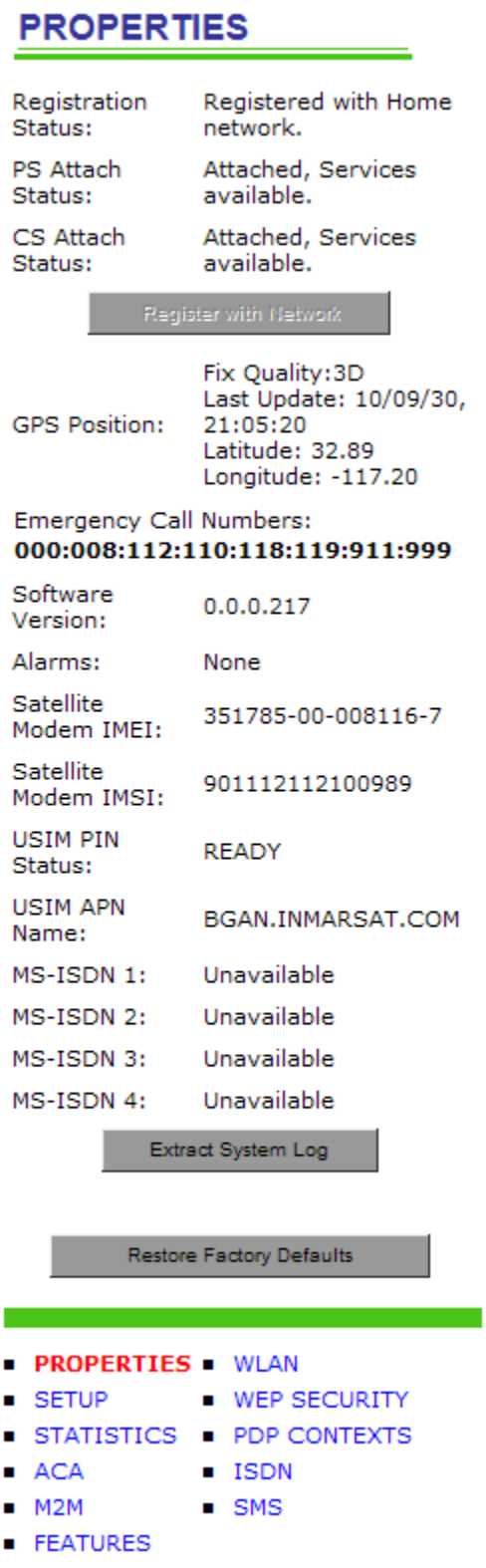
SMS Remote Management allows the unit to receive and act on special remote control SMS messages. Before this feature can be used you must obtain the feature activation code from your service provider and activate the feature by entering the UT specific code in the **Feature Activation Code** field. You will need to provide the unit IMEI to the Service Provider. This can be found on the Properties Page.

To use the feature you must next enable it on the **Remote Settings** SMS page.



ACCESSING THE UT MOBILE WEB UI

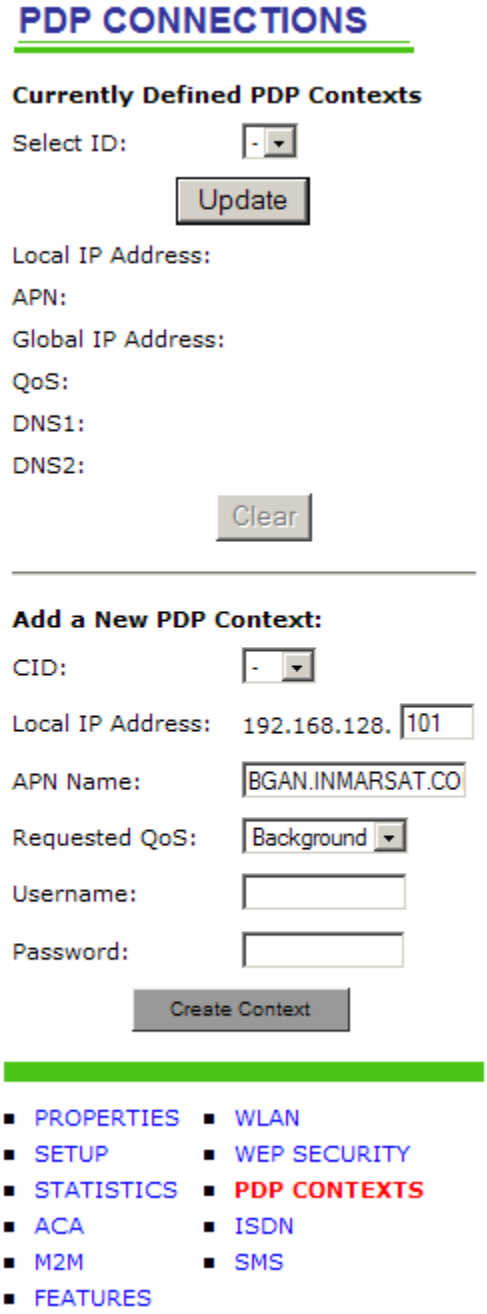
The UT includes special versions of the web pages formatted for mobile devices with small screens such as PDAs, BlackBerrys and iPhones. The UT queries the connecting device screen resolution to determine whether to load the normal or the mobile version of the web pages. The pages contain the same information and most operate the same way as the regular pages.



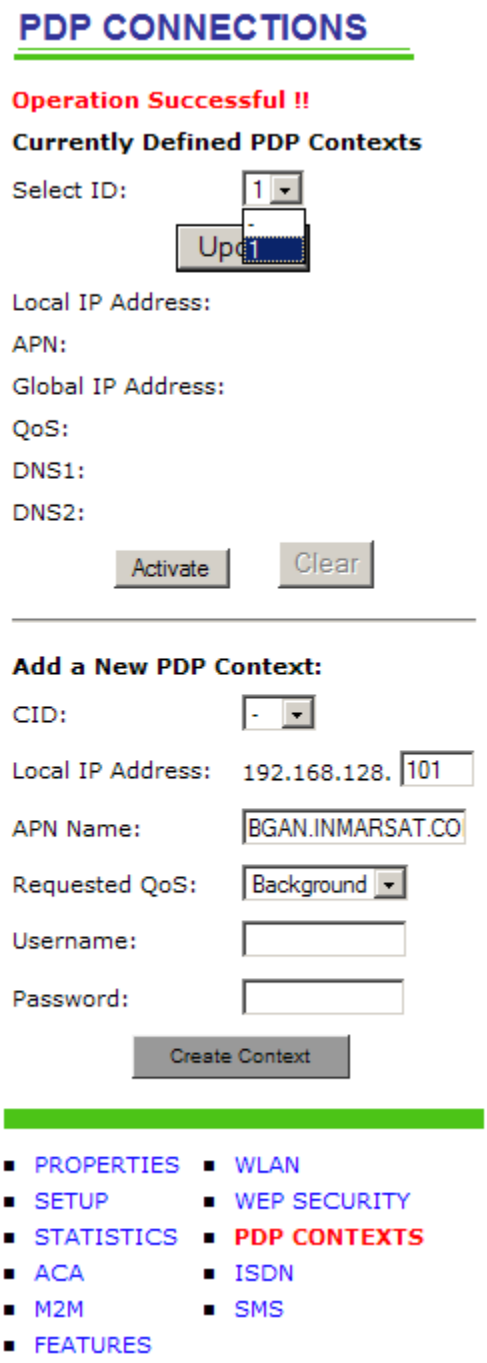
Mobile Web - PDP Contexts

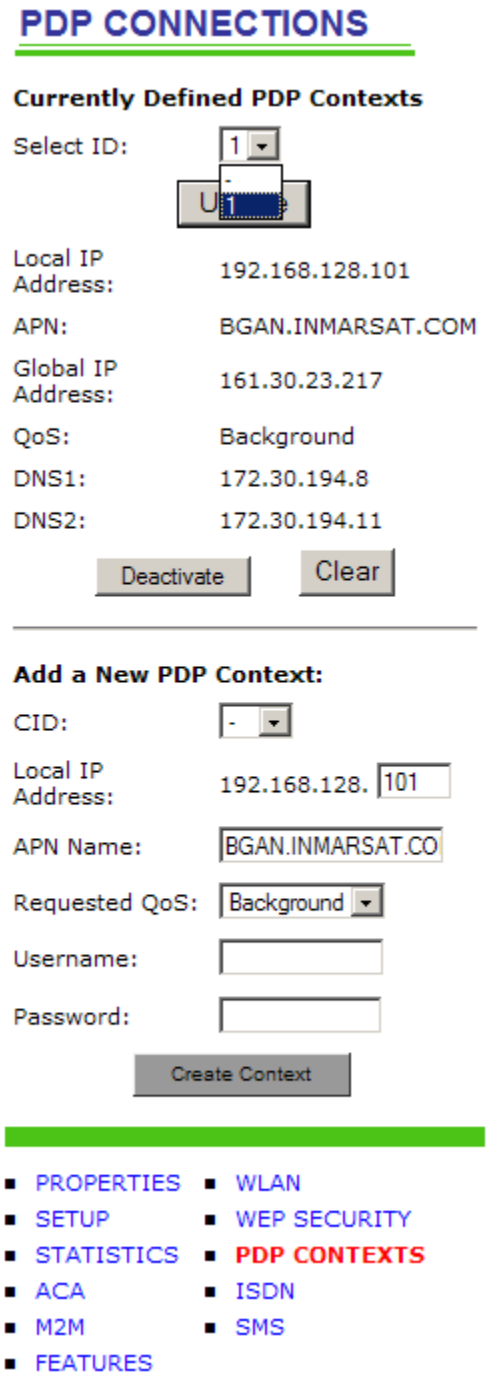
There is insufficient room to display all the PDP Contexts on one page in the mobile web version.

PDP contexts are created in the usual way from the "**Add a New PDP Context**" section of the screen.



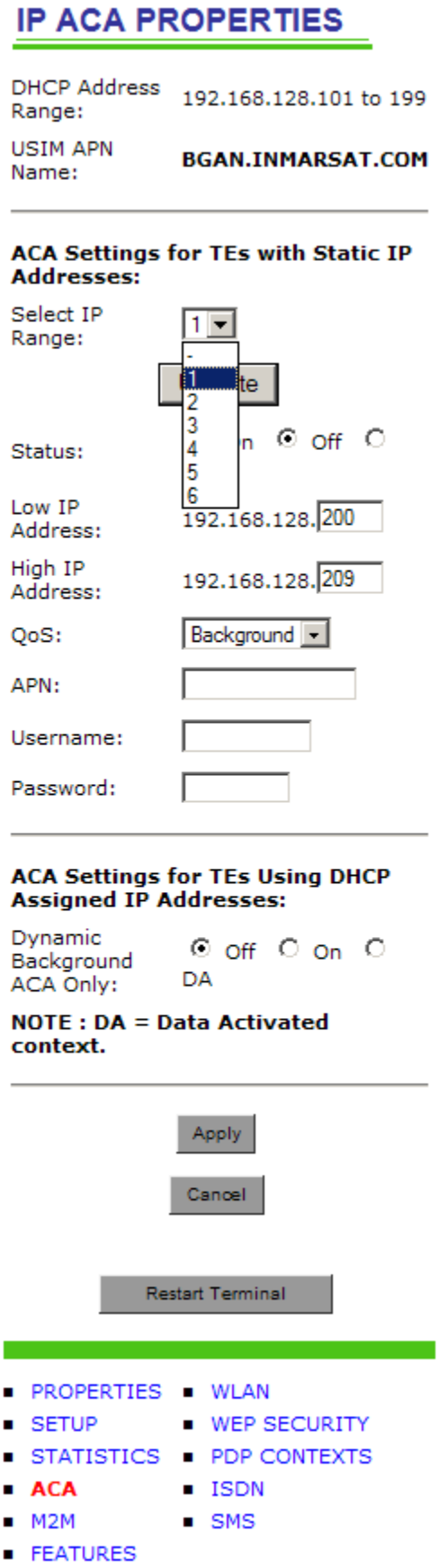
However, to display a defined context, select it from the "**Select Id**" field and then press update.





Mobile Web – ACA Page

There is insufficient room to display all the ACA IP address ranges on mobile version of the ACA page. To configure IP address ranges for different ACA QoSs, select the required **IP range** and then press **Update**.



SUPPORTED OPERATING SYSTEMS

LaunchPad supports the following Laptop/PC operating systems:

- Microsoft Windows® 7, Vista, XP and 2000
- Mac OS X (Intel and non Intel hardware)

☑ **Note**	You must disconnect any existing LAN connections on your PC before proceeding with installation. This avoids any conflict with the network configuration that you are setting up for the Satellite Terminal. You must verify that the proxy server settings in your browser are disabled. For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labeled "Use a proxy server for your LAN." For Netscape, go to Advanced Preferences and select "Direct connection to the Internet." When complete please close your browser. DO NOT FORGET TO RECHECK THIS BOX ON RETURN TO YOUR OTHER INTERNET CONNECTION.

BGAN LAUNCHPAD CORPORATE EDITION OR PERSONAL EDITION

You can install either the Personal Edition or the Corporate Edition.

BGAN LaunchPad Personal Edition is designed for personal use:

- All BGAN LaunchPad features are available
- You can personalize all of BGAN LaunchPad's functions and features without restriction.

BGAN LaunchPad Corporate Edition is for corporate users:

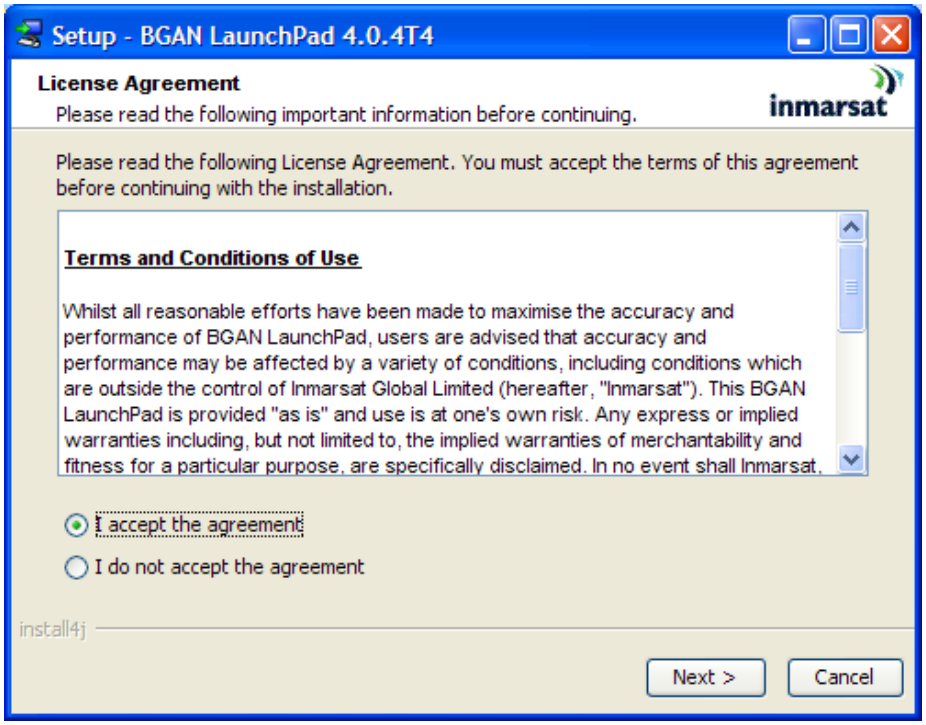
- A user profile is required with the corporate edition. A user profile is created with a separate application called BGAN LaunchPad Corporate Profile Maker.
- The user profile defines user restrictions so some features may not be available to you, depending on the configuration that has been set up by your Corporate IT Manager or service provider.
- You are asked to enter a username and password when logging in to BGAN LaunchPad.

INSTALLATION WIZARD

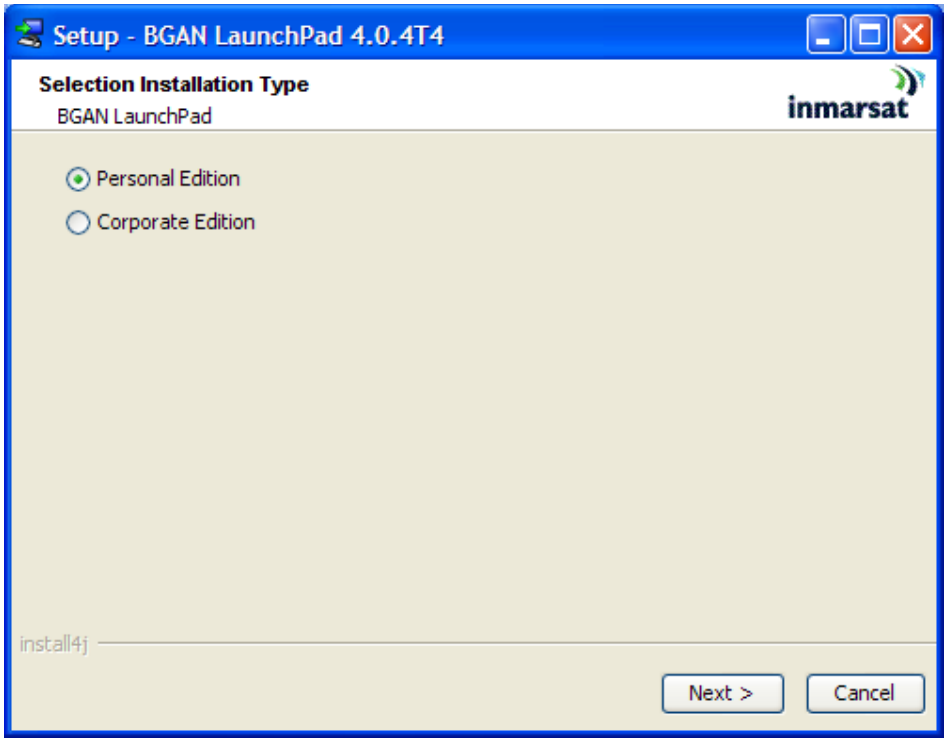
Run the LaunchPad Installation Wizard.

The following steps show the installation process:

7. The Installer prepares to install the LaunchPad software. It asks you accept the licensing agreement.

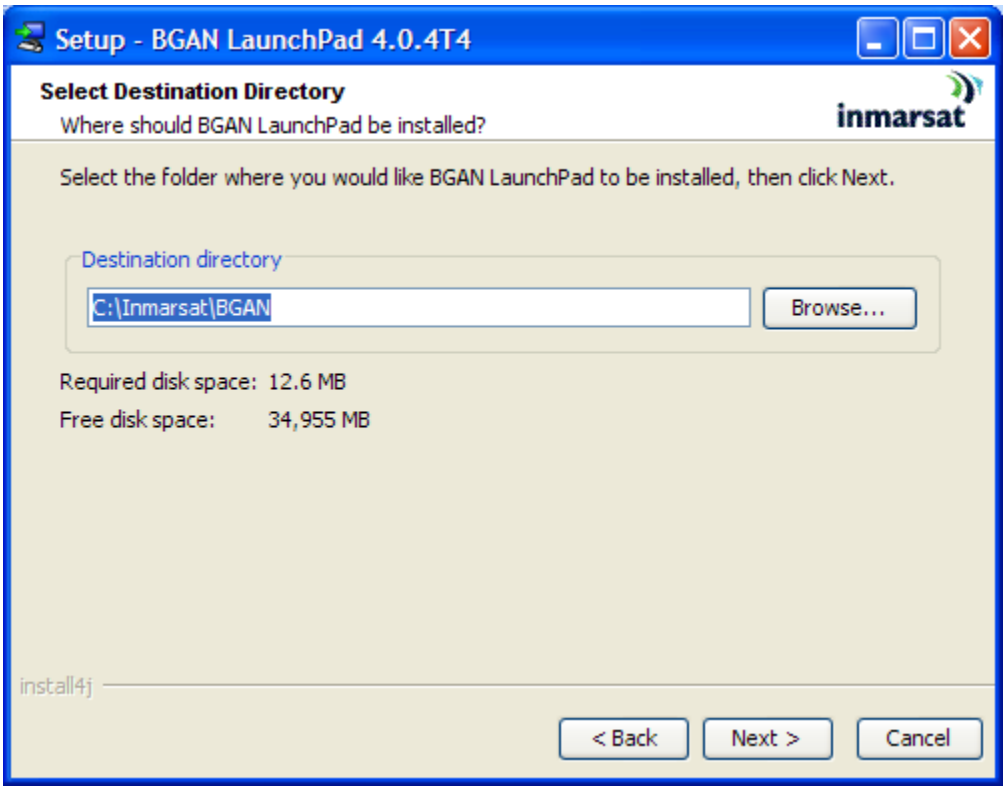

Setup - BGAN LaunchPad 4.0.4T4
License Agreement
Please read the following important information before continuing.
inmarsat
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Terms and Conditions of Use
Whilst all reasonable efforts have been made to maximise the accuracy and performance of BGAN LaunchPad, users are advised that accuracy and performance may be affected by a variety of conditions, including conditions which are outside the control of Inmarsat Global Limited (hereafter, "Inmarsat"). This BGAN LaunchPad is provided "as is" and use is at one's own risk. Any express or implied warranties including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are specifically disclaimed. In no event shall Inmarsat,
I accept the agreement
I do not accept the agreement
install4j
Next >
Cancel

8. Follow the on-screen instructions. **Note the following recommended choices**:
   - Make sure you select the appropriate **Edition** (Corporate or Personal) when prompted.



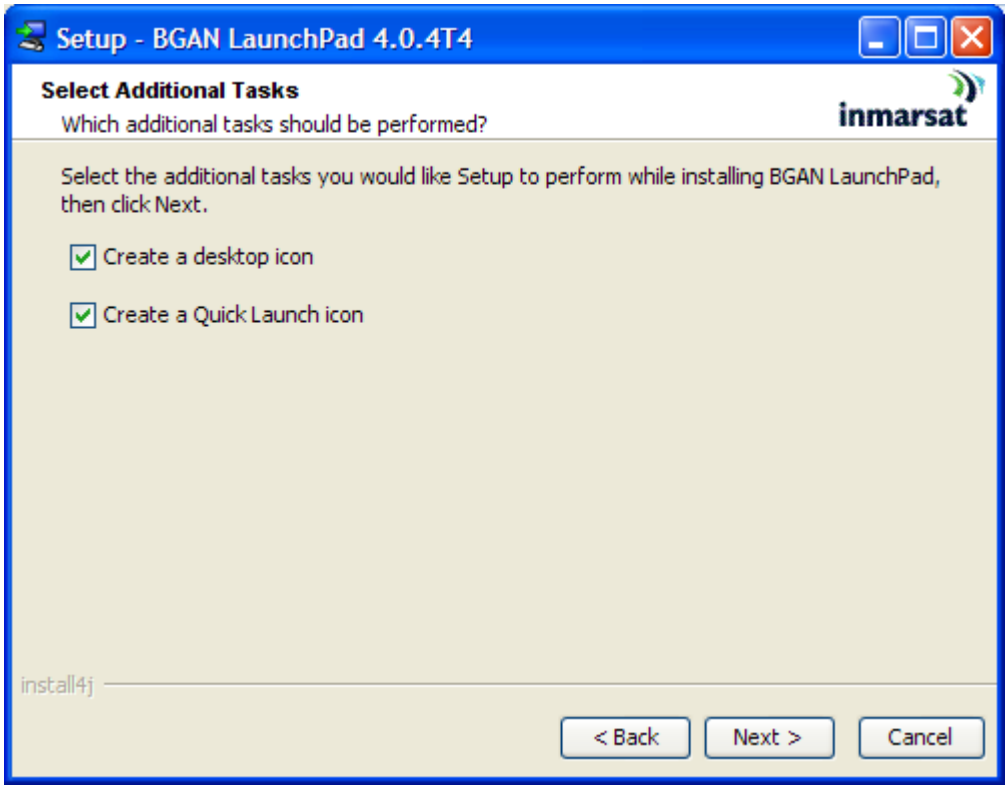
- **Special Corporate Edition Instruction:**
  - Inmarsat recommends that you install **BGAN LaunchPad Profile Manager** with the Corporate Edition. If you want to install Profile Manager, select Browse CD for any extra features, and follow the on-screen instructions.

9. Select the directory into which LaunchPad will be installed.

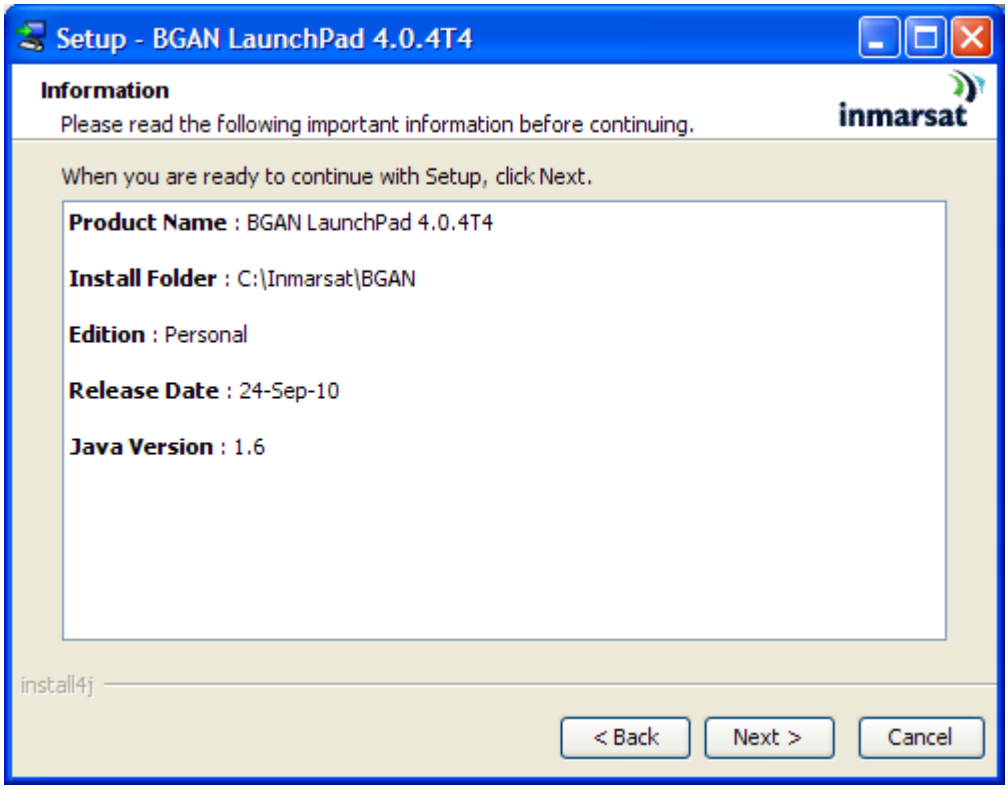


Other items for selection and installation messages:

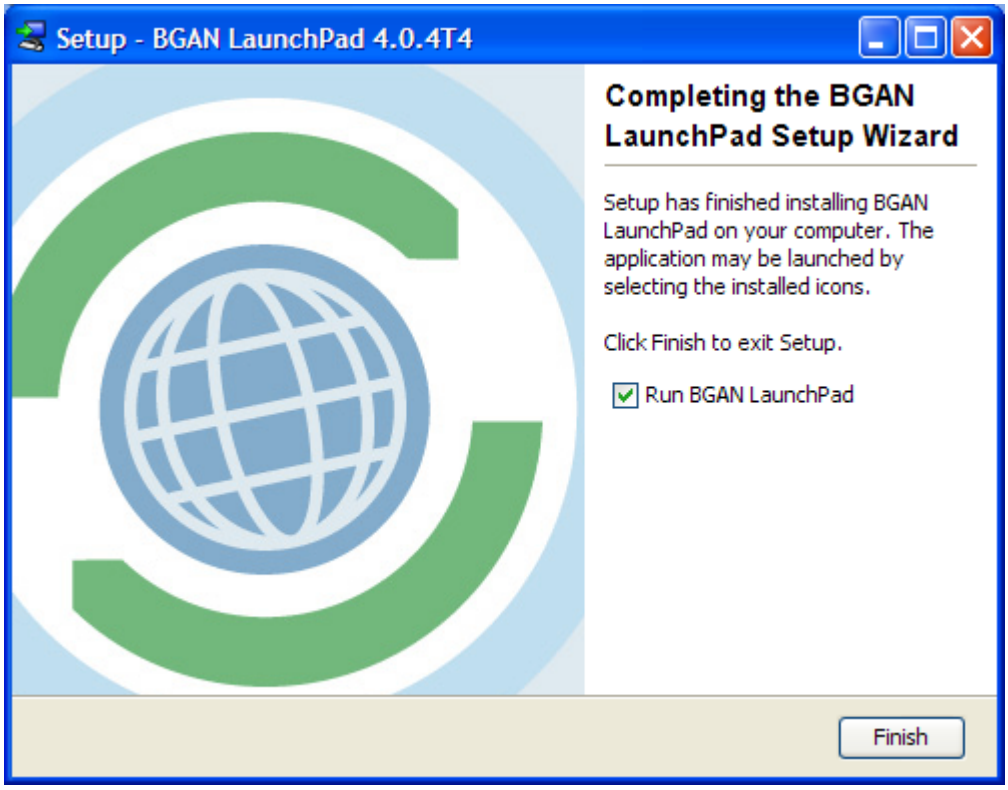
- Shortcut Destination Selection


Setup - BGAN LaunchPad 4.0.4T4
Select Additional Tasks
Which additional tasks should be performed?
inmarsat
Select the additional tasks you would like Setup to perform while installing BGAN LaunchPad, then click Next.
Create a desktop icon
Create a Quick Launch icon
install4j
< Back
Next >
Cancel

- Pre-Installation Summary


Setup - BGAN LaunchPad 4.0.4T4
Information
Please read the following important information before continuing.
inmarsat
When you are ready to continue with Setup, click Next.
Product Name : BGAN LaunchPad 4.0.4T4
Install Folder : C:\Inmarsat\BGAN
Edition : Personal
Release Date : 24-Sep-10
Java Version : 1.6
install4j
< Back
Next >
Cancel

- Installation Complete

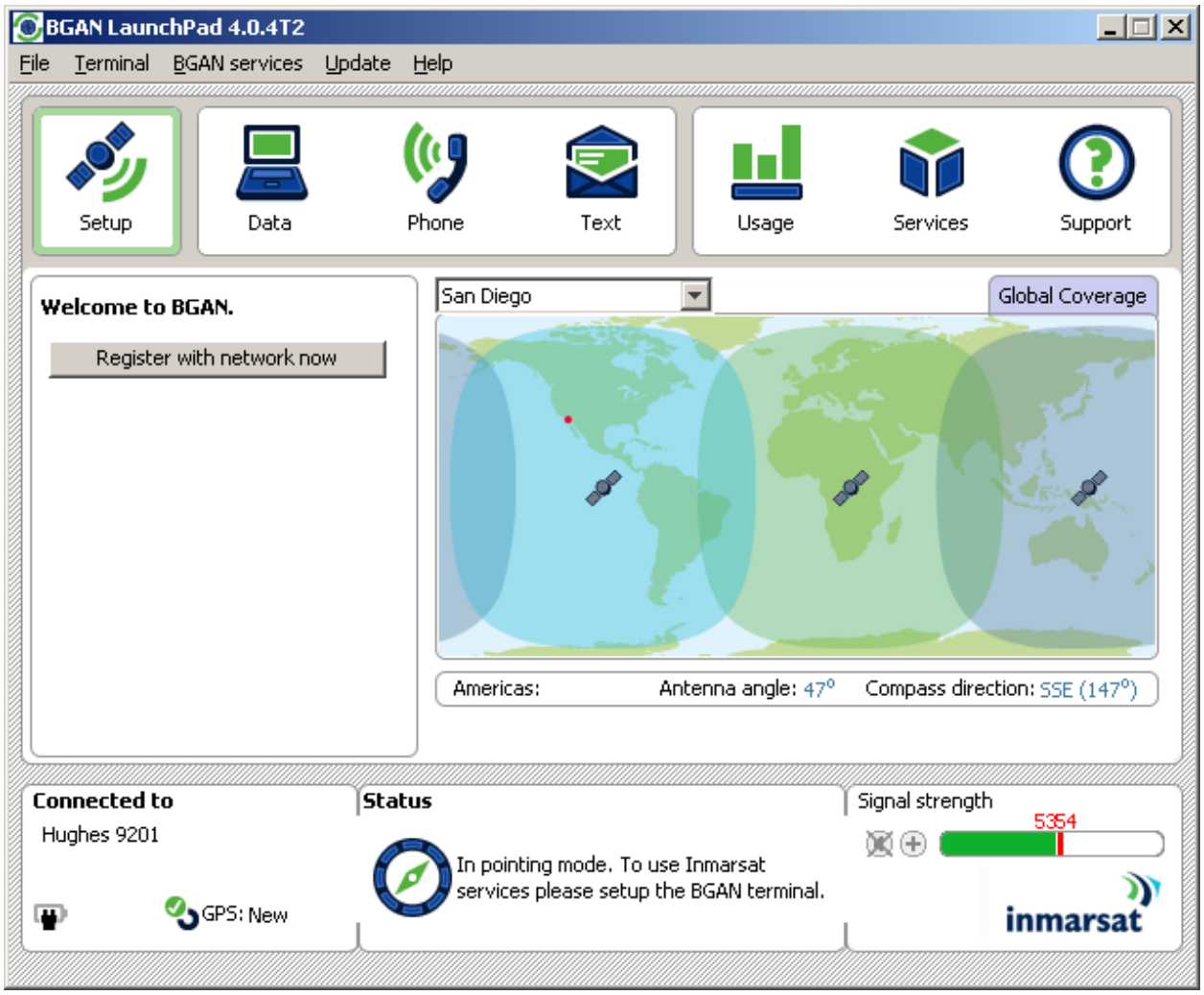

Setup - BGAN LaunchPad 4.0.4T4
Completing the BGAN LaunchPad Setup Wizard
Setup has finished installing BGAN LaunchPad on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Run BGAN LaunchPad
Finish

PLEASE NOTE that the BGAN LaunchPad version numbers shown in these examples will most likely be different than the versions numbers you will see when you perform the installation.

BGAN LAUNCHPAD OVERVIEW

The BGAN User Interface is called BGAN LaunchPad, and allows you to view and manage the terminal's operations and status via a user-friendly set of tools installed on your computer.

This is the screen that is displayed when you first start LaunchPad.



BGAN LaunchPad contains the following:

LAUNCH BAR

While in the LaunchPad application, you can click on any of the following icons to display the associated page of information, where you can perform BGAN LaunchPad functions:

The launch bar options include:

- **Data connections** – Use for connecting to the Internet to browse Web sites and send and receive emails. This section also includes advanced functions such as video and FTP configuration.
- **Phone options** – Provides a phonebook (only for use with SMS).
- **Text message options** – Use for sending and receiving text messages.
- **Usage information** – Shows circuit switched and packet switched usage information.
- **Services information** – Lists Service Provider support options.
- **Support information** – Provides LaunchPad help and Service Provider contact details.

STATUS BAR

The **Connected to** status, terminal **Status** and **Signal strength** are all shown on the status bar at the bottom of the page, as shown below:

PIN CODE ENTRY

When the BGAN LaunchPad is started and connects to the Satellite Terminal, the terminal queries the current SIM card to see if the SIM PIN is enabled. If the SIM PIN is enabled, the BGAN LaunchPad displays a SIM PIN window and asks for a valid SIM PIN before service is enabled.

If the SIM PIN is disabled then the BGAN LaunchPad will bypass this display.

PERSONALIZATION

After the PIN check, if Personalization is enabled and any checks fail, the BGAN LaunchPad displays the Security window and asks you to enter a valid de-personalization code. If all Personalization checks pass, the terminal will bypass the Security window. If personalization is enabled, the de-personalization code should have been supplied with the USIM/SIM.

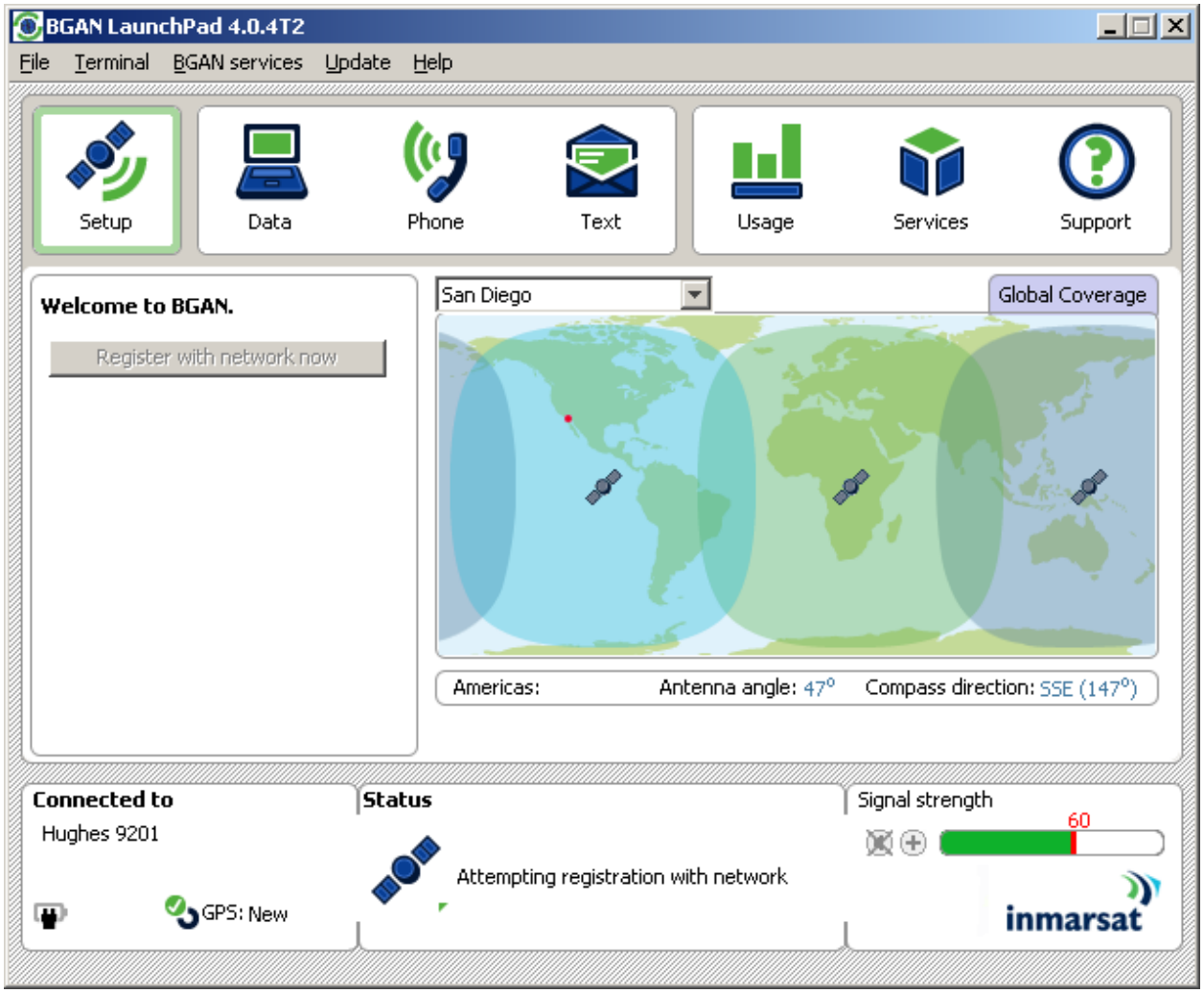
POINTING

After the PIN and Personalization checks, the pointing screen is displayed. Once you have completed pointing, click the **Register with Network Now** button to exit pointing and connect to the network.

See the section on **Pointing the Terminal: Using the BGAN LaunchPad** for details on how to use the Pointing Screen.

Main Display

Once all the initial checks have been completed, and the user presses the Register button, the main BGAN LaunchPad page is displayed, showing progress towards acquiring the network.



Multiple Users

Up to 11 users attached to the Ethernet, USB and Wireless LAN interfaces can access the BGAN LaunchPad at the same time.

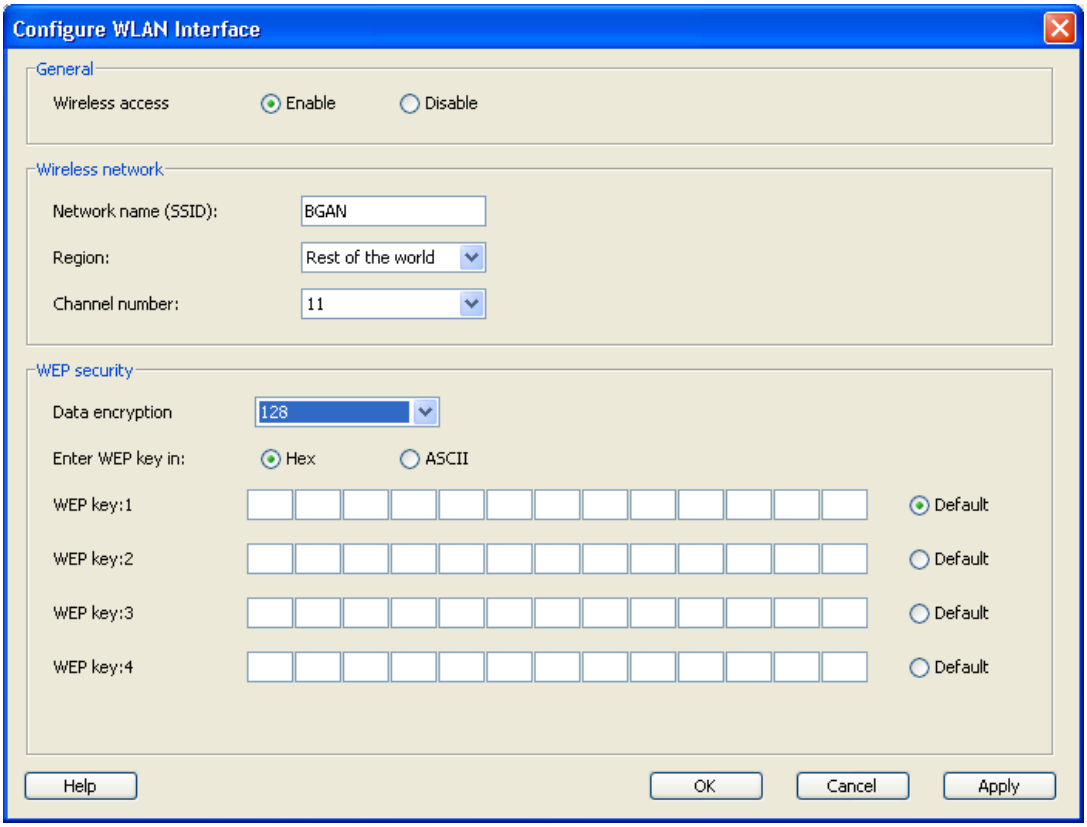
In a multi-user scenario, each user must establish their own PDP context with the network, either using LaunchPad or the ACA feature.

CONNECTING TERMINAL TO PC AND OTHER DEVICES VIA WLAN INTERFACE

The terminal provides WLAN access to any computer which has a WLAN interface.

The terminal's WLAN interface is configurable via the BGAN LaunchPad, as follows:

1. From the BGAN LaunchPad main menu, select **Terminal > WLAN Interface Settings**. The Configure WLAN Interface dialog box is then displayed:



2. Select **Enable** to activate the WLAN interface.
3. Enter a Network Name (**SSID**). The default is BGAN, but you can change this if required.
4. Select a **Region** from the drop-down list (France, Spain, or The rest of the World).
5. Select a **Channel number** from the drop-down list. This controls the channel number (1-14) used by the access point. Depending on the country only certain options are available for selection. Channel 11 is common to almost all regulatory options, and so is the default.
6. Select a **WEP Key Length** from the drop-down list. There are two key lengths available, 64 bit and 128 bit. 128 bit offers a higher level of security, but may cause a slight decrease in performance.
7. Select a **WEP Key Format** at the **Enter WEP key in:** text box. This can be either Hex or ASCII. Hex keys use hexadecimal numbers (0-9, A-F) to encrypt and decrypt data, and are the most widely supported format. Plain text (ASCII) keys are supported on some operating systems (check that your operating system supports ASCII before you select this option).
8. Enter up to **four WEP Keys**. The format depends on whether you selected Hex or ASCII.
   - Hex – Enter a two digit hexadecimal number (0-9, A-F) in each box on the WEP Key 1 row. You can enter up to four keys in total, and you should change the default key periodically for added security.

- ASCII – Enter a string of 5 characters for 64 bit encryption, or 13 characters for 128 bit encryption. You can enter up to four keys in total, and you should change the default key periodically for added security. Note: Not all operating systems can convert ASCII to hexadecimal format. If you have problems connecting via WLAN using an ASCII WEP key, try using the hexadecimal WEP key instead.

  Note: Check that each key that you set up here is exactly the same as each key on your computer's WLAN interface; i.e. WEP Key 1 on the LaunchPad must be the same as Key 1 on the computer WLAN interface, and so on.

9. Click **OK** to save the changes, **Cancel** to exit without saving, or **Apply** to apply the settings for this WLAN session only.

The following table summarizes the default settings.

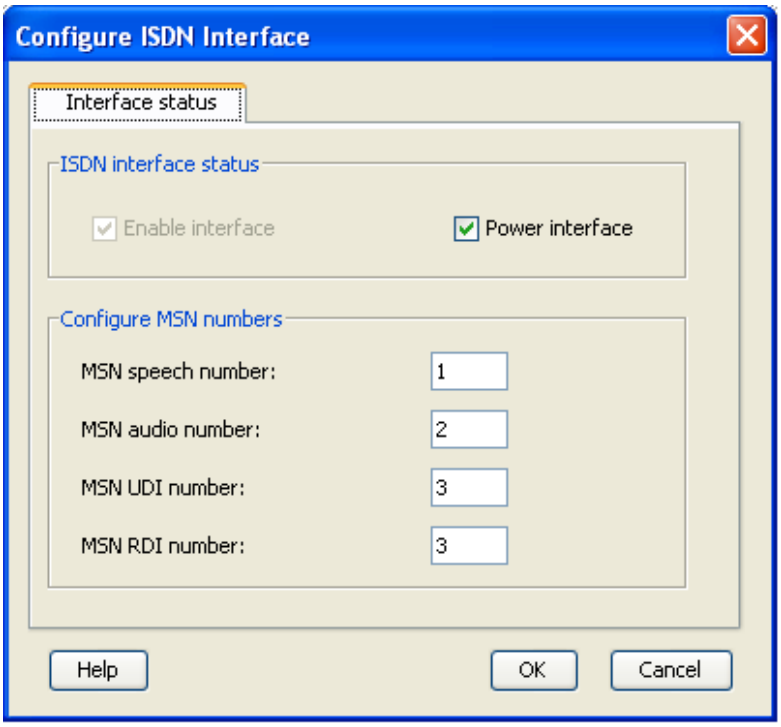
Parameter	Description	Default
Wireless access	Turn on/off WLAN Interface	Disabled
Network Name (SSID)	Sets the SSID	BGAN
Region	Region of Operation	Rest of the world
Channel	Wireless Channel of Operation	11
WEP Security	Turn on/off WEP Security	Off
WEP Keys [1-4]	Four WEP Keys	None
Key Selection	Selects the WEP Key	No key selected

The terminal supports MAC Address Filtering via the web UI.

ISDN EQUIPMENT

You can establish ISDN data communication by connecting your ISDN equipment directly to the BGAN Terminal's ISDN port with the supplied ISDN cable (which is the same as the Ethernet cable). To activate the ISDN interface, and set MSN numbering options, perform the following steps:

1. From BGAN LaunchPad main menu, select **Terminal > ISDN Interface Settings**. The **Configure ISDN Interface** dialog box is then displayed, with suggested MSNs set for each ISDN call types:



2. Select the **Power Interface** check box to activate the ISDN 40V "phantom power", or uncheck the check box to turn off the power. The ISDN interface itself is always active.
3. **For a 4 Kbps speech call**, enter MSN 1 into the MSN Speech number: text box. To receive incoming calls, you must program the same MSN into your ISDN handset connected to the ISDN port.
4. **For a 3.1 KHz audio call**, enter MSN 2 into the MSN Audio number: text box. To receive incoming calls, you must program the same MSN into your ISDN fax machine connected to the ISDN port.
5. **For an Unrestricted Digital Information (UDI) call** (64 Kbps ISDN), enter MSN 3 into the MSN UDI number: text box. Check the documentation supplied with your ISDN device for details on whether it is a UDI device.
6. **For a Restricted Digital Information (RDI) call** (56 Kbps ISDN), enter MSN 3 (same as UDI) into the MSN RDI number: text box. Check the documentation supplied with your ISDN device for details on whether it is an RDI device.
7. Click **OK** to save the changes, or **Cancel** to exit without saving.

Note: You can use MSNs other than the ones above, for any of the ISDN call types. But your ISDN equipment must be programmed with the same MSNs to accept incoming calls, and you must use different numbers for speech, audio and UDI/RDI calls. Any changes to this screen require a re-boot of the terminal to save the new configuration. Use the power button to gracefully power down and power back up.

VOICE TELEPHONY SERVICES

You can make and receive voice calls using the BGAN Satellite Terminal. To do this, you have to connect a phone handset. You can use two general types of phone handsets; either an ISDN handset, or a 2-wire analog handset with an ISDN terminal adapter.

Before your handset can accept incoming voice calls, you have to program its MSN (mobile subscriber number) to the same number as programmed in the terminal (default is 1). This ensures that incoming voice calls are directed to your handset. The handset's instruction manual will explain how to do this. Note: you can make emergency calls without the correct MSN programmed into the handset.

MESSAGING SERVICES

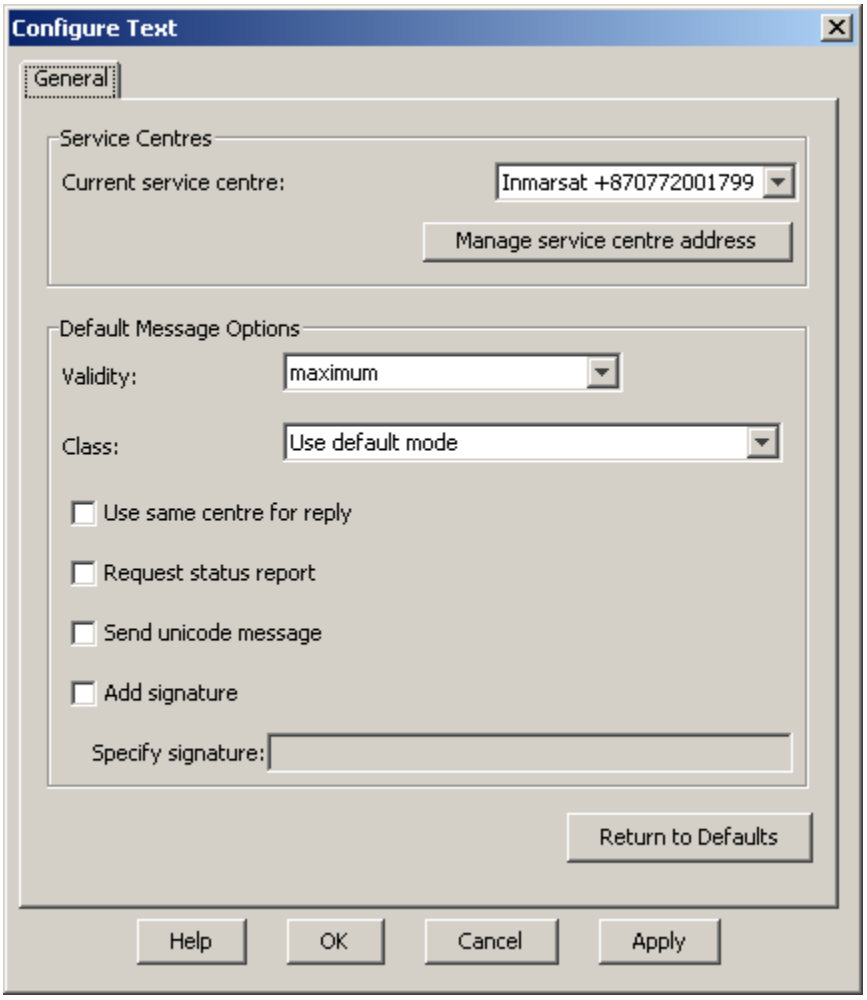
SHORT MESSAGE SERVICE (SMS) VIA BGAN LAUNCHPAD

The BGAN Satellite Terminal supports Short Message Service (SMS) capabilities. The Short Message Service handles point-to-point messages, and SMS messages can be sent from the terminal, and received by the terminal.

The text messages can contain up to 160 ASCII characters. The amount of data actually transmitted with an SMS message is dependent on the message size.

☑ **Note**	**SMS Messages can be read, edited, created, and sent via the SMS Application in the BGAN LaunchPad.** You cannot access SMS from an ISDN Handset or any other ISDN equipment.

The configuration screen for Text Messages can be accessed from the **Settings** Pull Down menu of the **Text** screen. To be able to send text messages you need to have the SMS service center configured with the following number: +870772001799.



SHORT MESSAGE SERVICE (SMS) VIA WEB UI

Refer to the Web UI SMS section on page 49.

DATA SERVICES

LaunchPad provides a variety of connection options to help ensure that all your data requirements are met. LaunchPad is configured with seven connections by default. You can edit these default connections or add to them by setting up any number of customized connections, called dedicated connections, using a configuration tool.

DEFAULT CONNECTIONS

The seven default types of data connections consist of one standard and six streaming types.

- **Standard**: A standard connection is charged per Mb. You are charged only for the amount of data that is sent. The bandwidth you are allocated depends on terminal type and network availability, but is always 'best effort', that is, you are allocated bandwidth depending on your requirements and the requirements of other users of the BGAN network, or BGAN Terminal. This connection class is suitable for most data types, other than multimedia.
- **Streaming**: A streaming connection is charged by time. You are charged for the amount of time the connection is active. Streaming enables multimedia data, such as video, to be sent in a continuous data stream and converted into sound and pictures. The bandwidth required for a streaming connection is difficult to predict, and depends on factors such as length of connection and number of receivers.

The standard connection is suitable for most basic data requirements, and is charged by the amount of data sent. If you require a guaranteed data rate for your connection, to eliminate delay for example, you can connect using one of the streaming connections, at the following data rates:

- 32 Kbps streaming
- 64 Kbps streaming
- 128 Kbps streaming
- 176 Kbps streaming
- 256 Kbps streaming
- BGAN X-Stream – up to 512 kbps

Each streaming class connection is charged by the length of time that the connection is live.

The standard and streaming connections are primary connections and are alternatives to each other, that is only one can be open at a time. You must close one connection before you can open another. This is per TE. Each TE can have its own primary PDP context (e.g. background or streaming connection) and up to 11 TE's may be connected to one UT at a time. Each TE will have a separate global IP address to the network.

DEDICATED STREAMING CONNECTIONS

If required, you can set up one or more dedicated streaming connections for applications such as live video and FTP using only one TE. A dedicated streaming connection ensures that a selected application does not have to share the connection with any other traffic from that same TE. The Terminal supports up to ten dedicated connections alongside the primary connection through the use of Traffic Flow templates (TFT's). A dedicated streaming connection is charged by the length of time that the connection is live.

LaunchPad displays an information note if you are about to open a streaming connection, or open two or more connections at the same time. Refer to About PDP Contexts for details on how LaunchPad manages data connections.

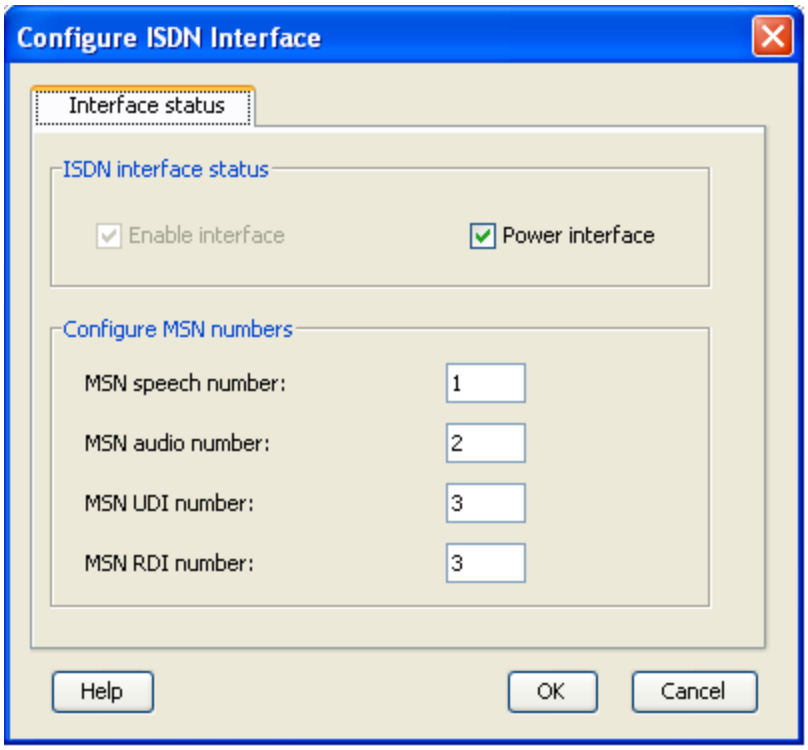
VPNs

If you require extra security when transmitting data, you can add a VPN connection to LaunchPad, and use this connection to run a VPN application on your computer. When your VPN connection is open and the VPN application is running, communications between LaunchPad and the Terminal are closed down. Therefore, when a VPN connection is open, information about the Terminal does not display on the LaunchPad status bar.

ISDN Data

Data can be sent and received via the ISDN interface on the BGAN IP Terminal. To make use of this service, you will need to connect an appropriate ISDN terminal equipment. Examples of ISDN equipment are ISDN cards in PCs or MACs, ISDN Audio/Video cameras and video-conferencing systems, and ISDN group 4 fax machines.

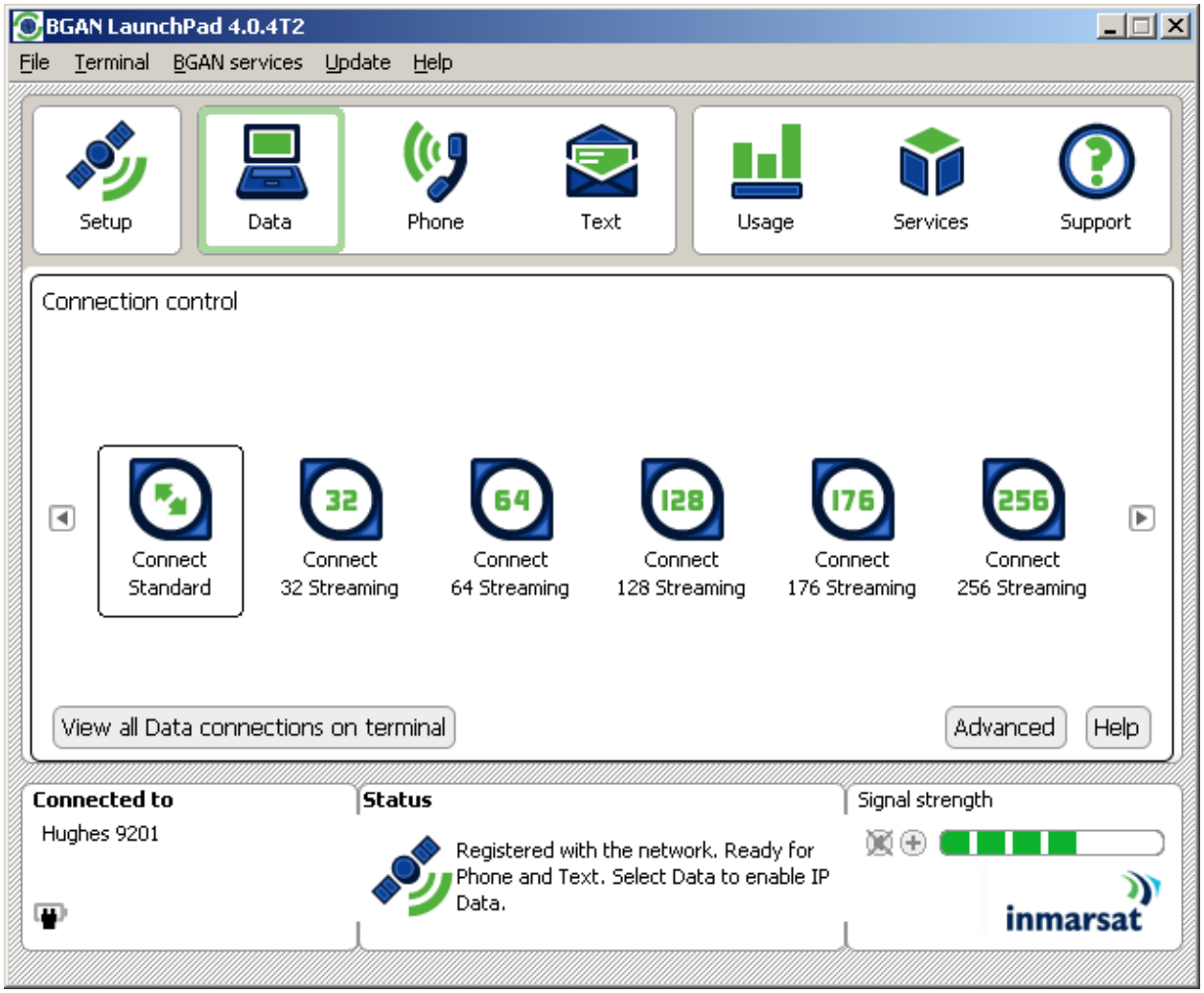
To accept incoming calls, you first have to program the ISDN terminal with the same MSN as is programmed in the satellite terminal for that call type. The MSNs are pre-set in the terminal to be 2 for 3.1KHz audio, and 3 for UDI/RDI data, but any number can be programmed. It is important that for each call type, the MSNs programmed in the terminal and the ISDN equipment match to ensure that incoming calls can be accepted. To re-program the terminal MSN numbers to match the ISDN device, go to LP>Terminal ISDN Interface. Any changes to this screen require the terminal to be re-booted prior to the changes taking effect.



Refer to the instructions supplied with the ISDN equipment for information on the equipment capability, the type of call that it uses, and how to program the appropriate MSN.

Opening Data Connections

Data connections can be opened, added and managed from the Data Connections tab. To open the Data Connections tab, click on the **Data** icon in launch bar. The Data Connections tab opens, as shown below:



From this window, you can do the following:

Open and Close Connections

- Open a Data Connection
- Close a Data Connection
- Open a VPN – only available if you have configured a VPN. Refer to Add a VPN for details.
- Close a VPN – only available if you have configured a VPN.

Add a Dedicated Streaming Connection

- Add a Data Connection

Add a VPN

- Add a VPN

Manage Connections

- View Data Connections
- Delete a Data Connection
- Change the icon order
- Hide an icon

OPENING AND CLOSING A CONNECTION

OPENING A DATA CONNECTION

To open a data connection, click on the **Data** icon in the launch bar to open the Data Connections tab. All the available data connections are displayed. You can select one primary connection, and as many secondary or dedicated connections as you require.

OPENING A STANDARD CONNECTION

To open the standard connection:

If a primary Streaming connection is open, close this connection by clicking on the **Streaming connection** icon. The message The Primary PDP context has been closed displays. Click on **OK** to close this dialog box.

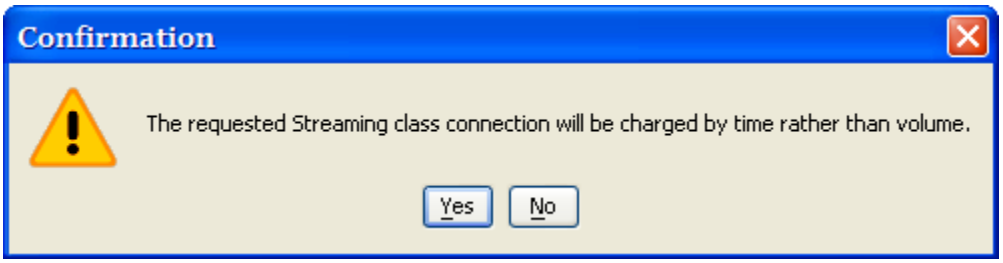
In the Data Connections window, click on the **Standard connection** icon. The message Primary PDP Context has been established successfully displays.

Click on **OK** to continue.

OPENING A STREAMING CONNECTION

To open a primary streaming connection:

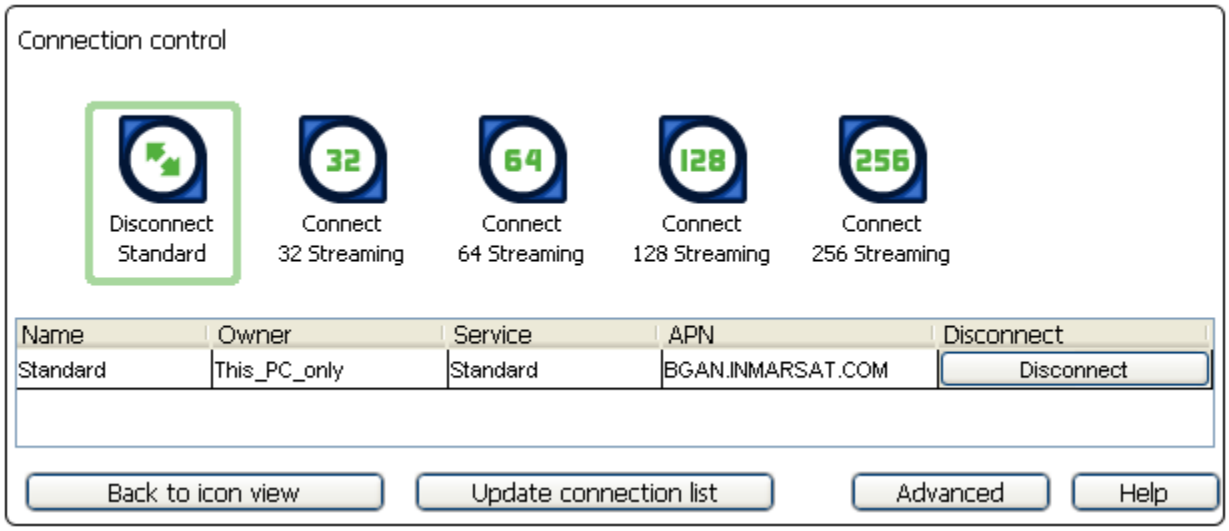
1. If the standard connection is open, close this connection by clicking on the **Standard connection** icon. The message The Primary PDP context has been closed displays. Click on **OK** to close this dialog box.
2. In the Data Connections window, click on a Streaming connection icon. The following dialog box displays:



3. Click on **Yes** to open the Premium connection. The message Primary PDP Context has been established successfully displays.
4. Click on **OK** to continue.

To close a data connection:

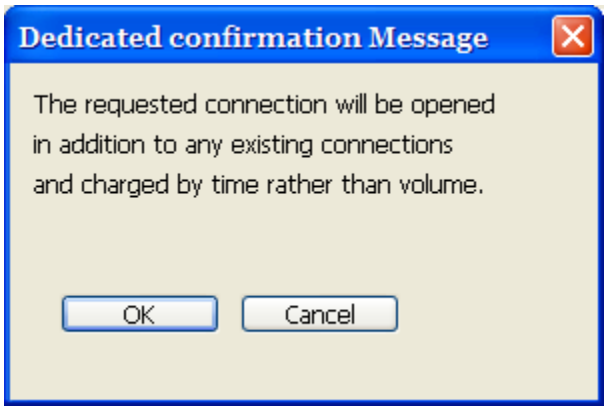
5. You can close any connection that is currently open by clicking on the appropriate icon.
6. Alternatively, click on **View all data connections on terminal,** and then click on the **close** button next to the connection you want to close.



OPENING A DEDICATED STREAMING CONNECTION

To open a dedicated streaming connection:

1. Click on the **Dedicated connection** icon that you want to open. The following dialog box displays:


Dedicated confirmation Message
The requested connection will be opened
in addition to any existing connections
and charged by time rather than volume.
OK
Cancel

2. Click on **OK** to continue. This opens a dedicated connection alongside your current primary connection. You can open as many dedicated connections as you require, in this way. But the total number of primary and dedicated data connections open on the terminal cannot exceed 11.

CLOSING A DATA CONNECTION

To close a data connection, do any of the following:

- Click on the connection in the **Data Connections** tab. The connection icon loses its outline, indicating that the connection is closed.
- In the Data Connections tab, click on the **View all data connections in terminal** button to display the BGAN Connections window. You can then click on **Disconnect** to close the appropriate connection.
- In the LaunchPad main menu, select **BGAN Services > Close All Data Connections**. The Close all satellite connections dialog box displays, where you have the option to select Close All My Data Connections or Close all Data Connections for All Users.

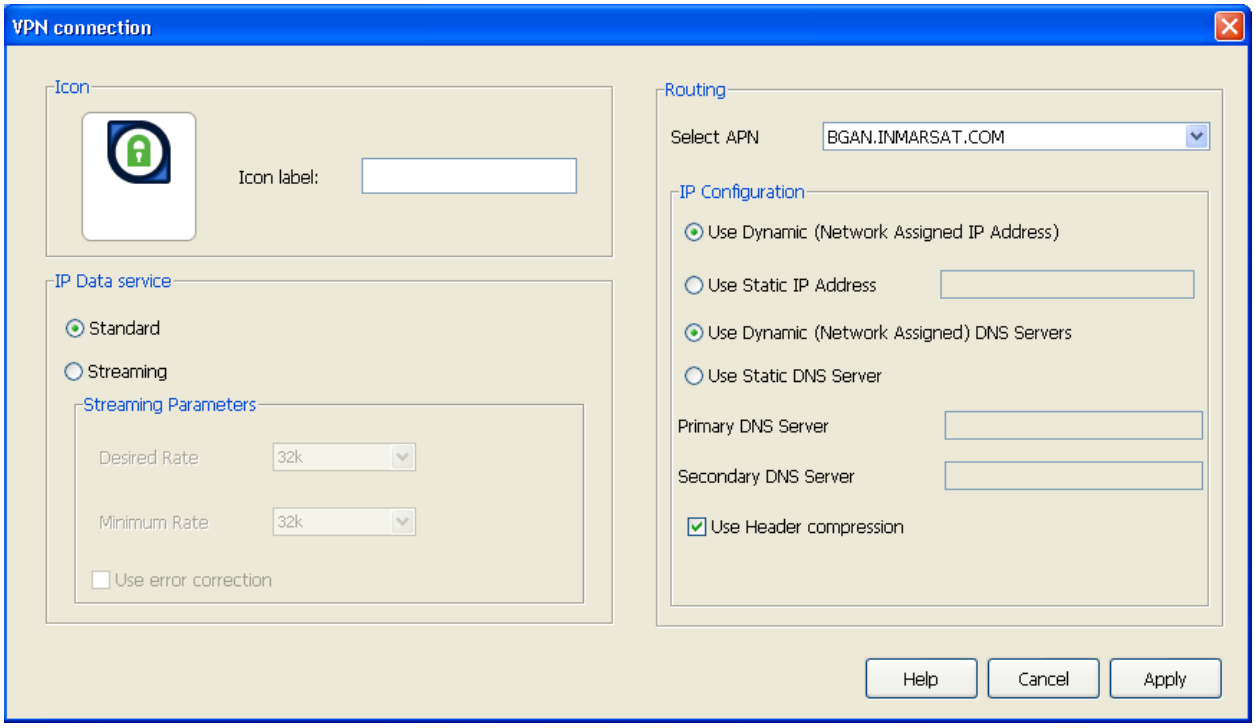
  Note: If you are sharing the BGAN Terminal, clicking on **Close All Data Connections for All Users** closes the connections of other Terminal users.

SET UP OR EDIT A VPN CONNECTION

A VPN connection differs from other data connections in that only the VPN connection can be open when a VPN application is running. LaunchPad closes all other functionality related to the Terminal while a VPN connection is open and a VPN application is running. For this reason, you must carefully select when to open a VPN connection, so that other operations are not affected.

To configure a VPN icon and VPN icon name, and launch an application with the VPN icon:

1. Click on the **Data** icon in the launch bar to display the Data Connections tab.
2. Click on **Advanced** to display the Connection Configuration window.
3. Click on **Add New Connection** to display the connection configuration screen.
4. Select **Create new VPN IP Data Connection** and click OK.



5. Type in a name for the VPN connection in the Icon label text box. The name and icon that you select here will display when you open the Data tab in LaunchPad.
6. You can now configure the VPN Connection Quality and Routing Options. The way to do this is identical to other data connections. For full details, see *Configuring Connection Quality* and *Setting Up Routing Options* in the *Adding Or Editing A Dedicated Connection* section below.
7. Click on **Apply** to save the displayed configuration or click on **Cancel** to exit without saving.

OPENING A VPN

To open a VPN connection and run a VPN application:

Click on the **VPN** icon in the Data Connections window.

1. Click on **OK** to continue. This opens the VPN connection ready for you to open a VPN application, and closes all other connections. Note the following:
   - All other data connections remain unavailable until you close the VPN application and the VPN connection.

- The Status section of the status bar indicates that there is No Open Connection, and the Connected to and Signal strength sections of the status bar do not display any Terminal information.
- Launch Pad closes all other functionality related to the Terminal whilst the VPN application and VPN connection is open.

2. Open the VPN application on your computer.

   Note: If you selected a VPN application when **Setting Up an Icon**, this application automatically launches when you open the VPN connection.

CLOSING A VPN

A VPN differs from other data connections in that the LaunchPad closes the interface with the Terminal whilst the VPN connection is open and the VPN application is running. For this reason, you must close your VPN application and reconnect to the Terminal when you want to return to normal LaunchPad functionality.

To close a VPN:

1. Close the VPN application on your computer.
2. In the LaunchPad status bar, click on **Search for BGAN Terminal**. The LaunchPad closes the VPN connection, re-connects to the Terminal, and opens a standard data connection. The process is the same as if the Terminal was Registering with the Network for the first time.

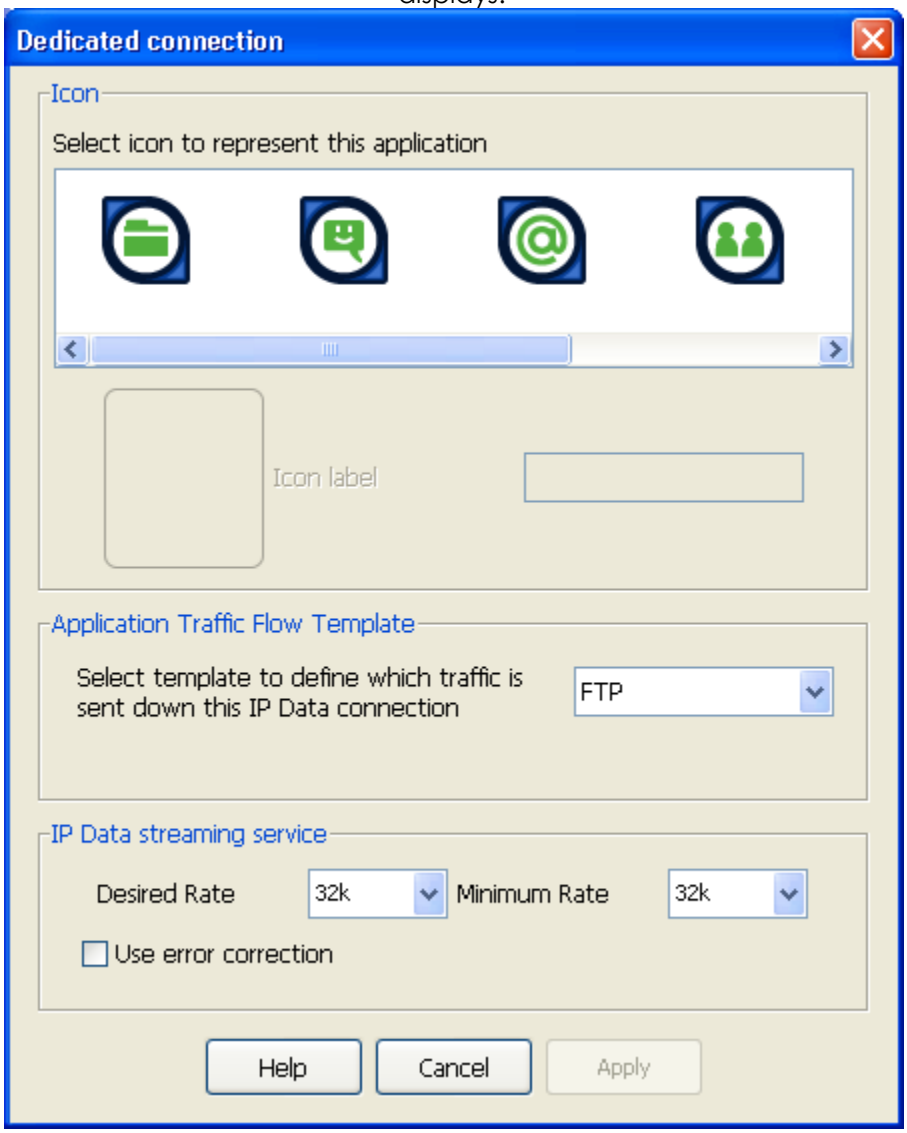
You can now use all LaunchPad features.

ADDING OR EDITING A DEDICATED CONNECTION

SETTING UP AN ICON

To configure an icon and icon name, and launch an application with the icon:

1. Click on the **Data** icon in the launch bar to display the **Data Connections** tab.
2. Click on **Advanced** to display the **Connection Configuration** window.
3. Click on **Add New Connection** if you want to set up a new connection, then select **Create new Dedicated Streaming IP Data connection** and click **OK**, or select a connection icon and click on **Edit** if you want to edit an existing connection. The **Dedicated Connection** window displays.



4. Select an icon. The icon displays in the box next to the **Icon label** text box.
5. Type in a name for the connection in the **Icon label** text box. The name and icon that you select here will display when you open the Data tab in LaunchPad.
6. Select the Application Traffic Flow Template for the dedicated connection from the list.
7. Select the desired and minimum streaming data rate for this connection.
8. Check the Use error correction check box if you want to turn error correction on.
9. Click on **Apply** to save the displayed configuration or click on **Cancel** to exit without saving.

CONFIGURING CONNECTION QUALITY

To configure the Connection quality for a data connection:

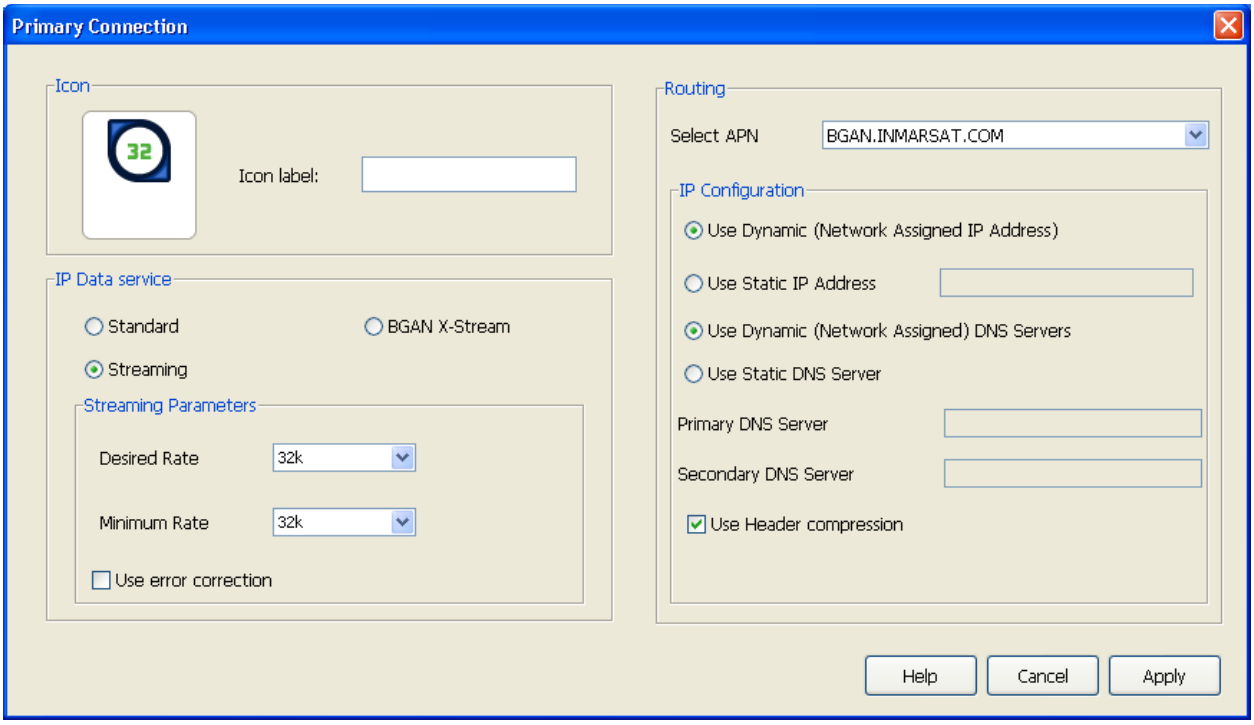
1. Either:
   - From the **LaunchPad Data Screen**, right-click the icon you want to edit,

   Or:

   - From the **LaunchPad Data Screen,** click on **Advanced**, select the icon you want to edit and click on **Edit**.

   Or:

   - To create a new connection: From the **LaunchPad Data Screen,** click on **Advanced**, then click on **Add new Connection**, select **Standard IP or Streaming IP or BGAN X-Stream IP Data Connection** and click **OK**.



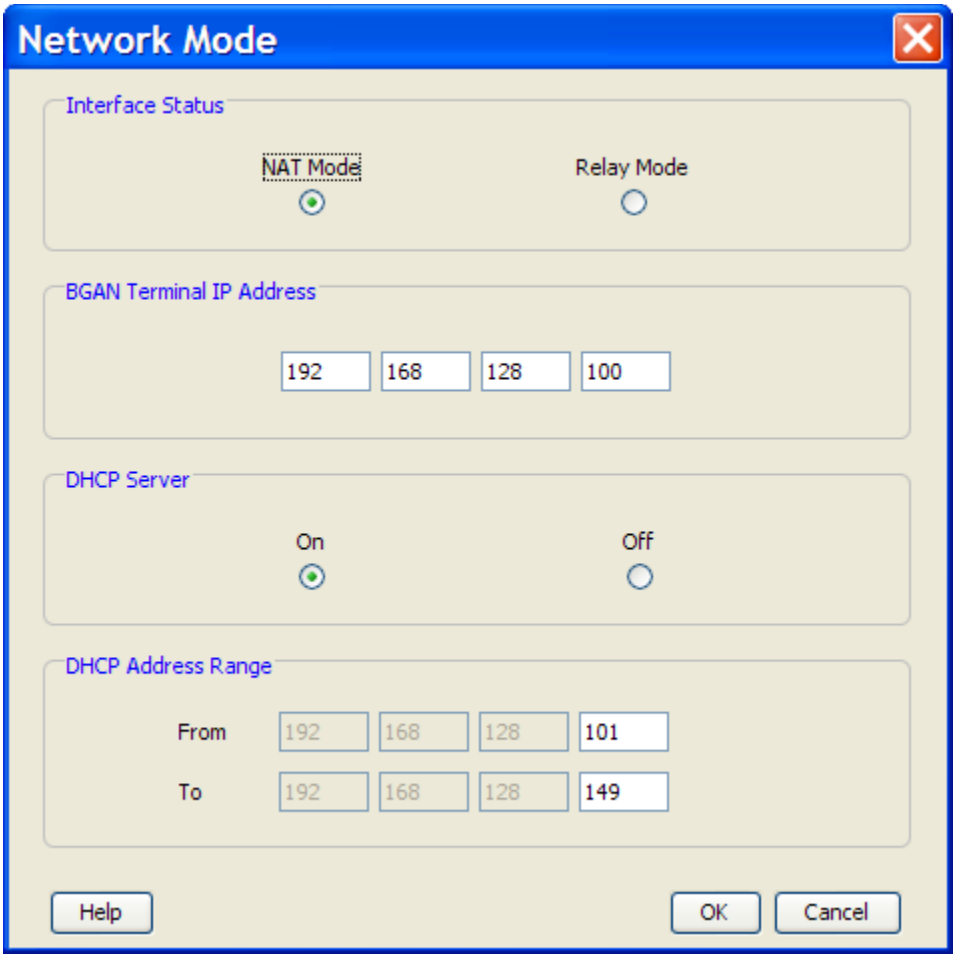
2. Enter a name for the connection in the field next to **Icon label:**
3. Select a Connection class. This can be either **Standard, Streaming** or **BGAN X-Stream**.
   - If you choose Streaming, the **Streaming Parameters** section of the window activates.
4. If you choose Streaming you can do the following in the Streaming Parameters section of the window:
   - Select the Desired Symmetrical Rate from the drop-down list.
   - Select the Minimum Symmetrical Rate from the drop-down list.
   - Check the Use error correction check box if you want to turn error correction on.
5. Edit the routing options for this connection:
   - Select an APN from the **Select APN** drop-down list. If it is not activated, only the default APN is available.
   - In the IP Configuration section, set up your IP Address requirements. Select either Use Dynamic (Network Assigned IP Address) or Use Static IP Address. If you select Use Static IP Address, enter the IP Address in the text box. You can get a static IP address from your Service Provider.

- In the IP Configuration section, leave the default "Use Dynamic (Network Assigned) DNS Servers" option.
- If required, check the Use Header compression check box to turn on header compression.

6. Click on **Apply** to save the displayed configuration or click on **Cancel** to exit without saving.

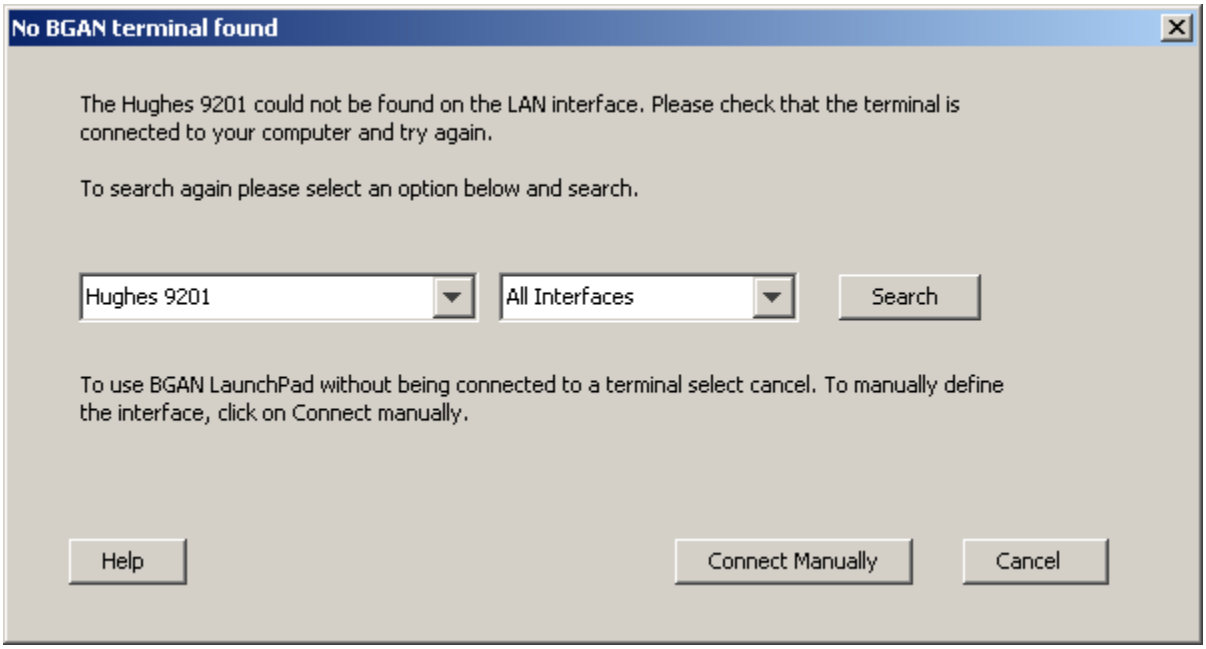
CONFIGURING NETWORKING PARAMETERS

To configure networking parameters from LaunchPad, select the Network Mode drop down menu from the terminal tab. This was updated in LaunchPad release 4.0.4 to add Relay Mode support.

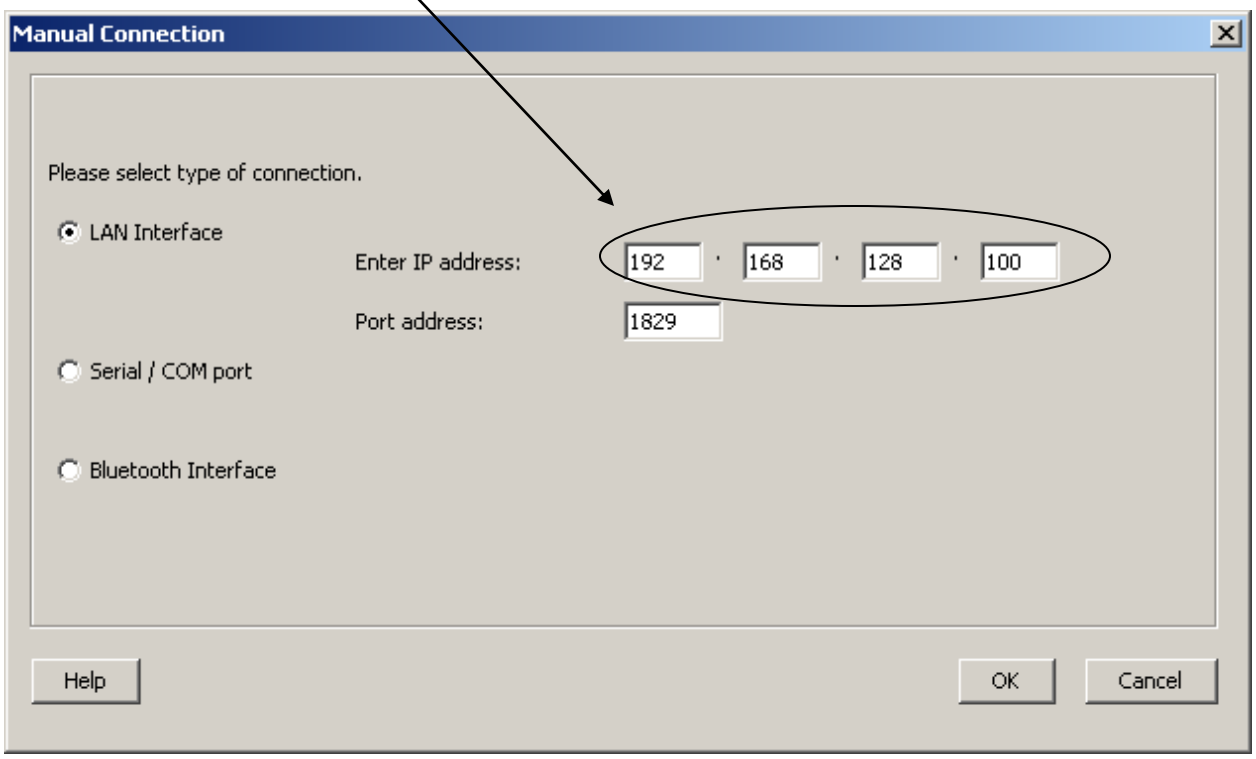


You must restart the UT for any changes on this page to take effect.

If you change the UT IP address, you should disconnect and reconnect the TE to allow it to clear and update its IP configuration. LaunchPad will lose its connection. When you restart LaunchPad you must select the "Connect Manually" option and enter the new UT IP address.


No BGAN terminal found
The Hughes 9201 could not be found on the LAN interface. Please check that the terminal is connected to your computer and try again.
To search again please select an option below and search.
Hughes 9201
All Interfaces
Search
To use BGAN LaunchPad without being connected to a terminal select cancel. To manually define the interface, click on Connect manually.
Help
Connect Manually
Cancel

Enter the new UT IP address:



NAT vs Relay Mode

The Interface status field indicates the network mode of operation of the terminal.

NAT Mode

In **NAT mode** once a PDP context is active, the UT will translate between the local and global IP addresses. This is a basic NAT that only performs IP address translation. It does not use port translation.

Relay Mode

In **Relay mode** the UT will supply the global IP address to the TE when the context is established. Relay mode is single user and only supports a single connected TE.

In Relay mode DHCP is required to provide the global IP address to the TE. When the context is activated, the DHCP server in the UT will NACK the next DHCP lease renewal from the TE and assign the global IP address assigned by the network. The local IP connection will be torn down and reestablished as the IP address changes. Similarly, when the context is deactivated the DHCP server will NACK the lease renewal and then reassign the original private IP address.

LaunchPad and the Web UI will lose and reestablish their connections to the terminal as the IP address is changed.

To make the IP address change happen quickly a short DHCP lease should be used. The terminal defaults the lease time to 60 seconds in idle and connected mode. (Web UI Setup page.)

Note that Relay mode only supports a single user TE.

MANAGING ISDN CONNECTIONS

OPENING AN ISDN DATA CONNECTION

Data can be sent and received via the ISDN interface on the Terminal. To make use of this service, you must connect an ISDN device to the Terminal. Examples of ISDN devices are ISDN cards in PCs or MACs, ISDN Audio Video cameras and ISDN fax machines.

To use the ISDN device with the Terminal:

1. Program an MSN (Mobile Subscriber Number) into the device. The number you use depends on the capability of your ISDN device.
   - If the device sends and receives data as 3.1KHz audio, such as Group 3 fax machines, use MSN 2.
   - The device sends and receives data as Unrestricted Digital Information (UDI) or as Restricted Digital Information (RDI), use MSN 3.

   Refer to the instructions supplied with your ISDN device for information on its capability, and how to program the appropriate MSN.
2. Make sure that the ISDN interface is set up in LaunchPad or the Web UI. Refer to *Setting up the ISDN Interface* for details.
3. Connect the ISDN device to the ISDN connector on the BGAN Terminal.

You are now ready to access ISDN Data Services.

AUTOMATIC MODE

The Satellite Terminal includes four automatic options: auto power on, LED on/off, antenna pointing bypass, and automatic context activation. You can set all of these options with the BGAN LaunchPad or Web UI.

AUTO "ON" MODE

When the Satellite Terminal is mounted on a pole, the power button may be inaccessible. This can be a problem if there is a power failure since the unit will turn off and will not turn back on when power is applied. You could use the unit with a battery to provide battery backup in case of power failure. However, at extreme temperatures a battery could be damaged and should not be used.

To solve this problem, you can activate the terminal's auto on feature. With auto on enabled, if a power adaptor is connected, the terminal turns on as if the power button was pressed. The terminal can still be powered off by pressing the power button with this feature enabled. The terminal can be powered on by reconnecting the AC or DC power adaptor, or pressing the power button. The default configuration of the terminal is for auto on to be enabled.

The auto on feature can be used in conjunction with antenna pointing bypass to allow the Satellite Terminal to automatically recover from a power outage (assuming PIN, etc are disabled).

LED ON/OFF MODE

In a semi-fixed installation, you can use this option to operate with all LEDs off to make your unit and operation less conspicuous.

ANTENNA POINTING BYPASS

You can configure a pointing bypass option that causes the unit to skip the pointing phase. The unit then performs spot beam selection, registration and network connection. This option should only be used for fixed installations where pointing is not required on subsequent power ups. With this option active, if the unit is moved or the signal attenuated, the unit will remain in global beam scan until the problem is fixed and the global beam acquired. After acquiring the global beam the Satellite Terminal automatically continues with network registration.

Point Once is another form of pointing bypass and is described in the "M2M Satellite Terminal Point Once Installation Procedure" section.

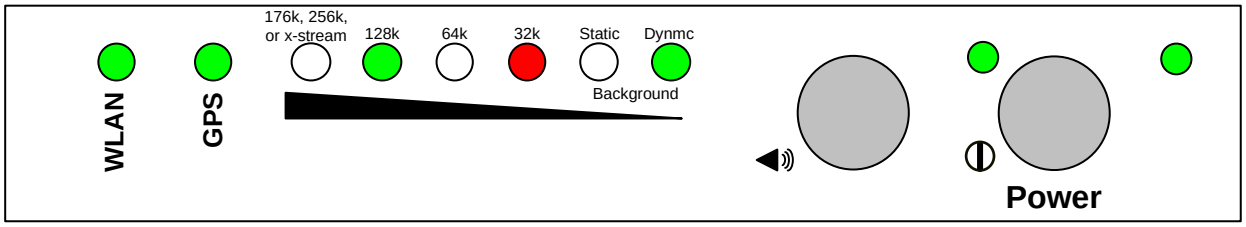
AUTOMATIC CONTEXT ACTIVATION

If you have enabled automatic context activation, the Satellite Terminal automatically activates a PDP context when it exits antenna pointing, registers with the network and detects a connected TE.

The "context create" request uses the default Access Point Name (APN), username and password stored in the Satellite Terminal. You can modify these parameters using the BGAN LaunchPad or Web UI (see the ACA and M2M Web pages.)

FRONT PANEL LED INDICATORS FOR ACA

The Automatic Context Activation feature uses the front panel LED's to give visual feedback to the user what the context status is for each QoS. The position of the LED indicates the type of service as shown in the figure below:



The leftmost LED is used to indicate a 176k, 256k or X-Stream connection.

Blinking Green LED: The UT is currently trying to establish a PDP context with the desired QoS.

Solid Green LED: The UT currently has at least one PDP context using this QoS.

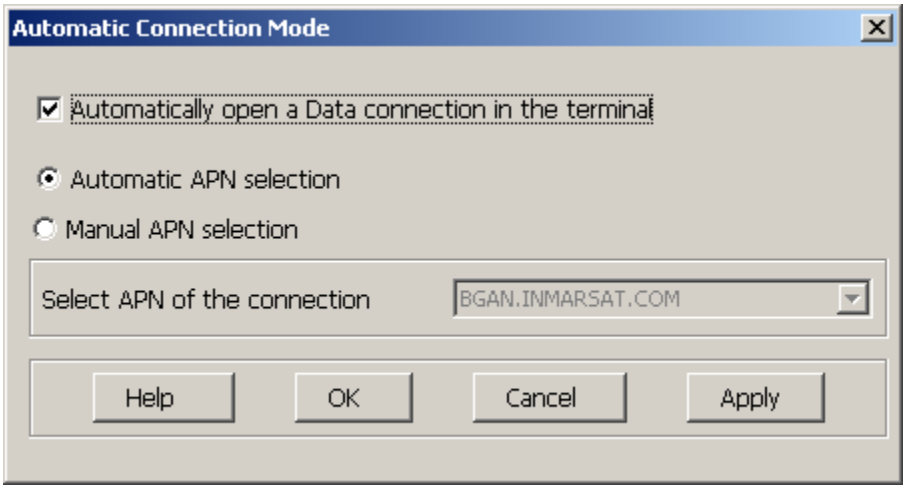
Blinking Red LED: The UT failed to establish a PDP context using the desired QoS, but it is retrying.

Solid Red LED: The UT failed to establish a PDP context using the desired QoS.

If a second TE attempts to establish a connection for a context with the same QoS as an already established context, there will be no change to the front panel LED, i.e. it will remain solid green.

LAUNCHPAD "AUTOMATIC CONNECTION MODE" DESCRIPTION

The Inmarsat LaunchPad application controls ACA via a feature called "Automatic Connection Mode" that can be found by going to the "Terminal" tab and selecting automatic connection mode. This is the same feature as Dynamic Background ACA on the ACA web page. It is used to automatically establish a background PDP Context for any TE that connects to the 9201.



Note: LaunchPad also includes a different "LaunchPad automatic connection" option on the BGAN Services tab. If this option is configured, LaunchPad will automatically request a standard Data connection after network registration. This parameter is part of the LaunchPad configuration and there is no corresponding feature on the web UI.

CONFIGURING ACA VIA THE WEB UI

The ACA feature can be fully configured from the Web UI ACA page. To configure ACA for TEs with static IP address refer to the Web UI ACA page and the M2M page for Always On ACA.

USIM APN Mode vs. Manual APN Mode

The ACA feature supports two different modes; USIM APN mode and Manual APN mode. These two modes are supported across all IP Address Ranges for all QoS assignments.

USIM APN Mode (default)

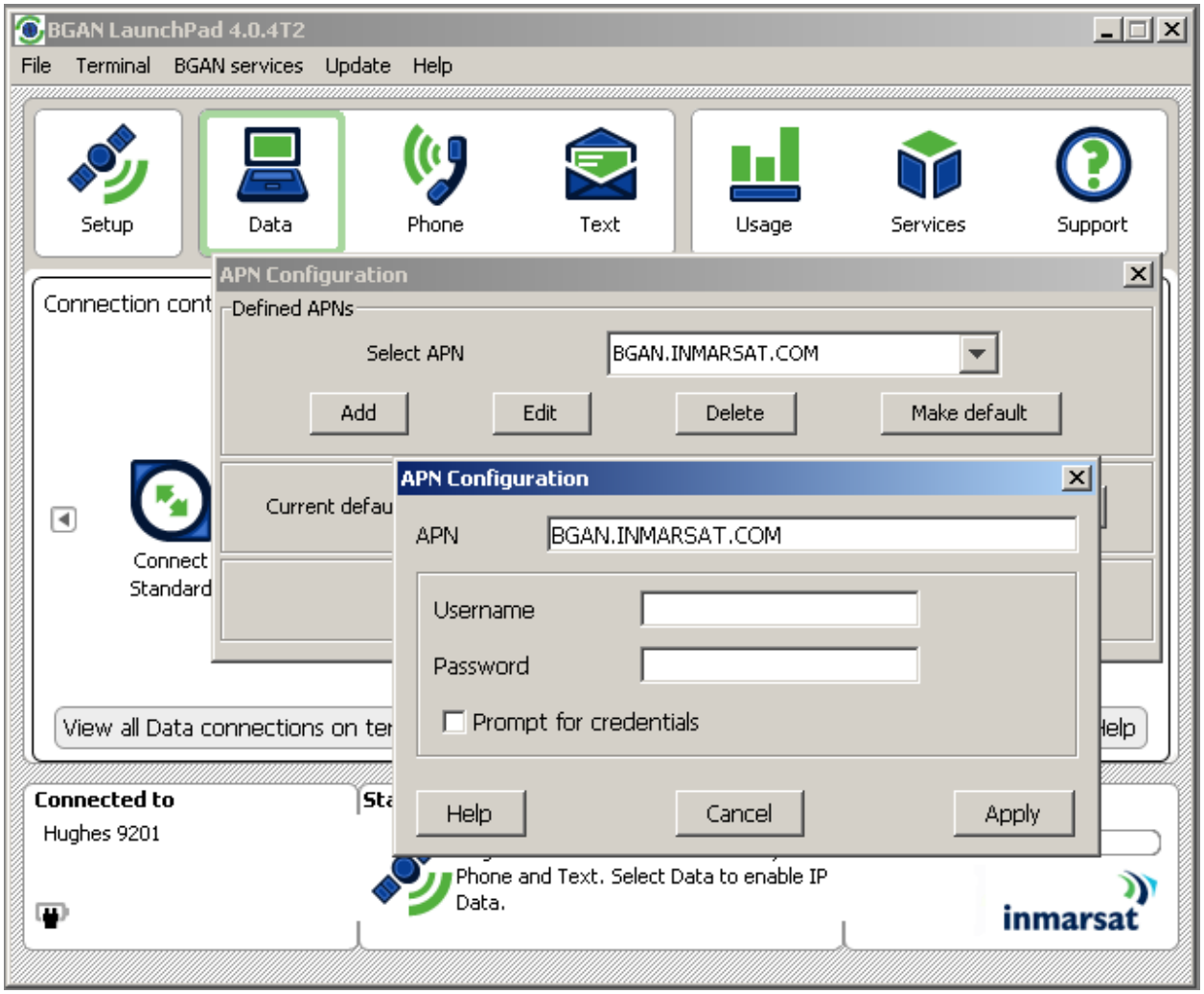
USIM APN Mode is used if Automatic Context Activation is enabled and the user has not defined a specific APN to be used. If no APN is defined, the UT will read the APN name directly from the USIM when attempting to establish a PDP context.

Manual APN Mode

Manual APN Mode is used if Automatic Context Activation is enabled and the user has defined a specific APN to be used. If an APN is defined, the UT will use that APN when attempting to establish a PDP context.

If the APN requires a username and password to successfully establish a PDP context, it must be defined as well.

LaunchPad allows the user to define the APN, along with any required username and password under BGAN Services. After the APN has been defined, it will be available when configuring the UT Automatic Connection Mode.



PHONEBOOK

BGAN supports a phonebook feature to facilitate the management of phone numbers.

The phonebook is stored on the USIM, and can have up to 250 entries. The phonebook can also be saved as a file to your computer, and your computer can also load phonebook entries from this file back to the USIM.

EMERGENCY CALLS

You can make emergency calls with an ISDN handset, or an analog handset plus ISDN terminal adapter connected to the terminal. You must have exited pointing, and you do not need to have a USIM in the terminal (assuming the network is configured to allow emergency calls without a SIM).

PDP Contexts Overview

PDP Contexts – Primary and Secondary

Resource management for BGAN is based on PDP contexts, or connections. This means that in congested networks each user needs his or her own context to ensure a fair allocation of bandwidth from the network. Therefore, the Satellite Terminal creates a PDP context for each connected computer that has traffic to send over the network. The multiple contexts can be primary or secondary.

- Primary contexts can connect to different APNs each with an individual username and password. This is useful because each APN will only support a single set of subscribed Quality of Service (QoS) values.
- Primary contexts each get their own global IP address.

The total number of primary and secondary contexts that the Satellite Terminal can support is 11. For example, it can support 5 primary and 6 secondary contexts, but not six primary and 6 secondary contexts. There is only a single primary context assigned to each computer connected to the Satellite Terminal.

You can configure the Satellite Terminal to enable or disable automatic context activation. Even if automatic context activation is used, you can still manually control contexts for flexibility and exception conditions.

Primary Context

The Satellite Terminal creates a primary context with the entered information. If a primary context already exists for your local IP address, you have to disconnect the current context before creating the new one. This could happen if a context was created automatically and the user wants to change to a different APN or QoS. Your BGAN LaunchPad or Web UI indicates whether the context is successfully created or displays any errors. LaunchPad or Web UI also allows you to disconnect any contexts.

Secondary Context

Secondary contexts can be set-up from the BGAN LaunchPad, and must always be associated with an existing primary context. Secondary contexts are used when multiple applications on your computer require different types of contexts.

Each secondary context requires a Traffic Flow Template to be configured, which defines how the data for the secondary context should be routed. This is done through the BGAN LaunchPad.

IP Addressing

Connections between each TE and the terminal are achieved with private IP addresses, and between the terminal and the BGAN network with global addresses.

Private addresses are dynamically assigned by the DHCP server in the terminal, starting from192.168.128.101 and up to 192.168.128.199 if the TE is configured to obtain an IP address automatically.

You can also manually configure the IP address of the TE with the operating system's administrative tools. See the Automatic Context Section for the range of static and dynamic addresses that can be used.

The global address of the terminal is assigned by the Network Service Provider, and can be either static or dynamic. Dynamic global address configuration is automatically carried out by the mechanism in the terminal that activates contexts. Static global addresses must be setup with your Network Service Provider in advance.

The local IP address of the terminal can be modified for special applications using the web server of the terminal. To access the web server, open an Internet browser and type in http://192.168.128.100 in the URL address field. To access the local IP address of the terminal Click on Setup. Change the last octet (e.g. 192.168.128.xxx) and click on Apply. You must re-boot the terminal for the change to take effect.

Multiple Users

Up to 11 computers can be connected to the BGAN terminal using the Ethernet, WLAN and USB interfaces.

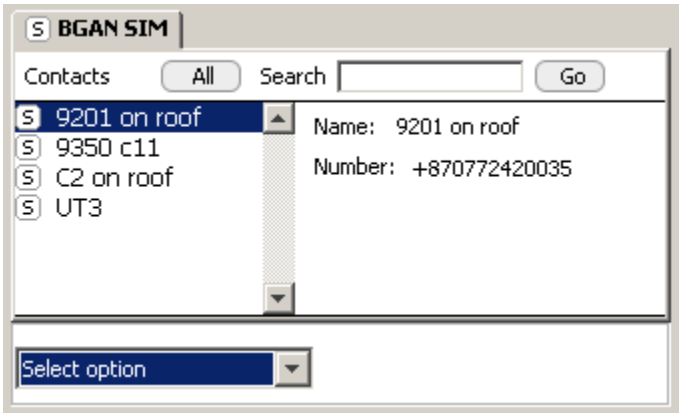
More than one TE can be connected to the Ethernet interface by using either a hub, a router or a switch. If a hub or switch is used, the BGAN terminal will allocate private IP addresses to each TE connected to the hub, and so each TE will be able to have a primary PDP context. If a router (which includes a NAT) is used, the whole private network would appear as a single device to the BGAN terminal, and so the TEs connected to the router will share a single primary PDP context. The NAT in the router would assign IP addresses within its own subnet.

Multiple computers connected via the WLAN interface will each be allocated a private IP address.

Managing Contacts

The Contacts window enables you to manage your Phone and Text contacts. You can add a new contact, edit or delete an existing contact. In addition, you can export a contact to a file on your computer, or import a contact from any file on the computer.

The Contacts screen shown below displays when you click on the Phone icon or the Text icon on the launch bar.



Contacts are stored in the BGAN SIM.

From this window you can:

- Create or Add a New Contact
- Edit a Contact
- Export a Contact to a File
- Import a Contact from a File

Click on a contact name in the Contacts column to display the details of the contact alongside.

You can also search for a contact by typing in the first few letters of the contact name in the **Search** text box, and then click on **Go**. The Contacts list then shows only the entries which match the search text. Click on **All** to display all contacts again.

ADDING AND EDITING CONTACTS

This section explains how to add, edit or delete a contact.

ADDING A CONTACT

To add a contact to an address book:

1. In the Select Option window, click on **New** option.
2. Enter the name of the contact on the **Name**: line.
3. Enter the contact number at the **Number:** prompt.
4. In the Select option window, click on **Save** to save the contact details.

EDITING A CONTACT

To edit an existing contact:

1. Select the contact to be edited and click on **Edit**.
2. Edit the name or the contact number of the contact.
3. In the Select option window, click on **Save** to save the contact details or **Cancel** to leave the contact unchanged.

DELETING A CONTACT

To delete a contact:

1. Select one or multiple contact from the Contacts list.
2. In the Select option window, click on **Delete**. You are asked to confirm the deletion.
3. Click on **Yes** to confirm, or **No** to return to the Contacts window.

EXPORTING AND IMPORTING CONTACTS

This section explains how to export a contact to a file on your computer, and import a contact from a file on your computer.

EXPORTING A CONTACT

You can export a contact or contacts to a file on your computer.

To export a contact to a file:

1. Select the contact to be exported and in the Select option window, click on **Export**. The **Choose Export Type** dialog box displays, as shown below:

2. Check the **File** check box to export the contact to a file on your computer.
3. Click on **Continue**.
4. The **Save** dialog box displays. Navigate through your computer's file structure using this window, and click **Save** to save the contact details.

IMPORTING A CONTACT

You can import a contact from a file on your computer. To do this:

1. In the Select option window, click on **Import**. The **Open** dialog box displays.
2. Navigate through your computer's file structure using this window, and click **Open** to select the contact details you want to import. The **Select Address Book** dialog box displays, as shown below:

3. Check the **BGAN SIM** check box to import the contact to the BGAN SIM.
4. Click **OK** to import.

TCP PEP SOFTWARE

Transmission Control Protocol (TCP) enables two hosts, usually computers to establish a connection and exchange data. It improves the efficiency of data transfer by dividing the data into packets, then delivering the packets in the same order that they were sent.

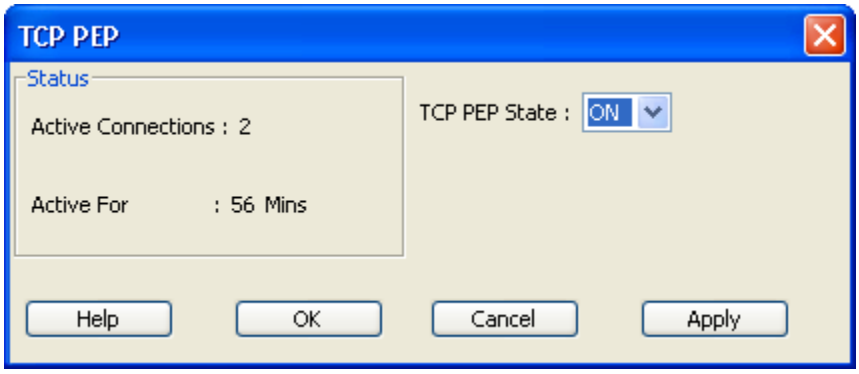
TCP with Performance Enhancing Proxies (TCP PEP) enhances the performance of TCP over a satellite network such as the BGAN network by providing:

- **Fast start** – useful for transferring small amounts of data, since traditional TCP is often slow with smaller data transfers.
- **Increased window size** – improves TCP performance in larger bandwidth applications.
- **Delay based congestion control** – ensures high transfer rates and less delay.

TCP PEP software can be downloaded from the Inmarsat web page.

You can enable or disable TCP PEP, and monitor any errors, using the TCP Accelerator screen.

- From BGAN Launch Pad main menu, select **BGAN Services > TCP Accelerator**. The TCP Accelerator screen is then displayed. To turn on TCP PEP select "ON" from the drop down in the TCP PEP State and then hit "Apply".



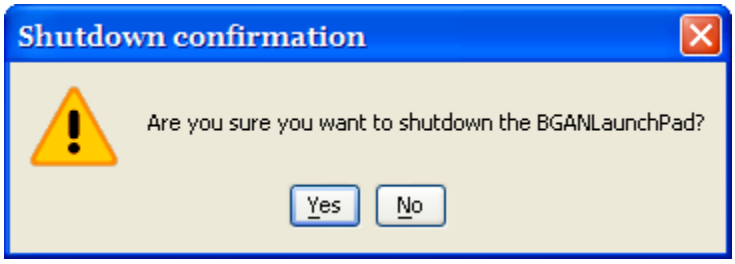
EXIT, RESET AND RESTART FEATURES

EXITING LAUNCHPAD

You can exit LaunchPad and leave any active connections open. Refer to *Closing a Data Connection* or *Closing a Connection in Multi-User Mode* for details.

Exit LaunchPad as follows:

1. Click **File > Exit BGAN LaunchPad**. The Shutdown Confirmation dialog box displays:



2. Click **Yes** to confirm shutdown, or No to cancel.

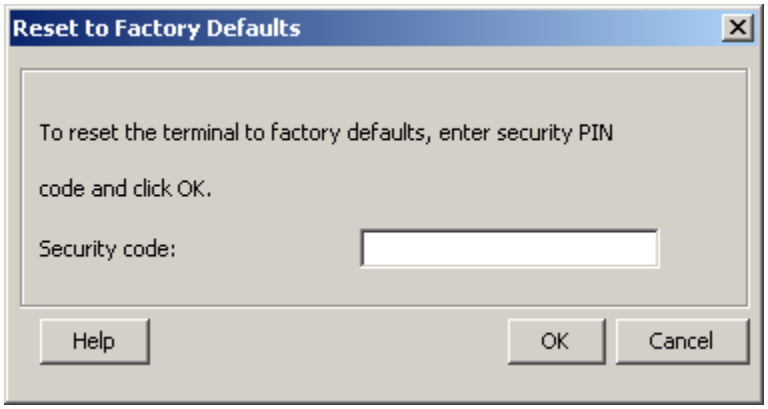
RESETTING THE TERMINAL (SECURITY CODE)

If you have the required access privileges, you can reset all the configuration settings of the Terminal to the factory default. Note that your current settings are lost during the reset.

Note: This will delete all "User" Parameters that have been previously setup (WLAN, User name and password, etc.)

To reset the terminal to factory default:

Select the **Terminal > Reset to Factory Default** option on LaunchPad main menu. The Reset to Factory Default dialog box displays, as shown below:



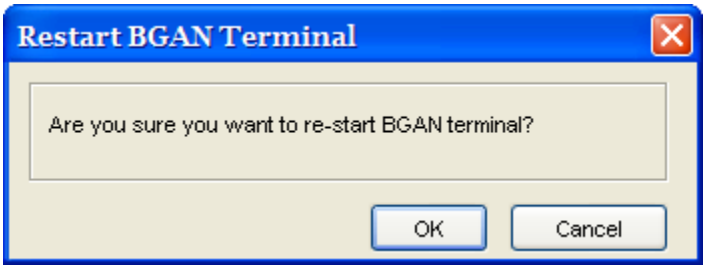
1. Enter the **security code** in the Security Code text box. The security code is "**broadband**" (lowercase)
2. Click on **OK** to reset the terminal, or click on Cancel to exit without resetting.

RESTARTING THE TERMINAL

You may want to restart the terminal if an error occurs.

To restart the terminal:

1. Select **Terminal > Restart Terminal** from the LaunchPad main menu. The Restart BGAN Terminal dialog box displays, as shown below:



2. Click on **OK** to restart the terminal, or click on Cancel to exit without restarting.

GETTING HELP

Support for the BGAN Satellite Terminal is provided via the following help options:

- Using Services
- Using Support
- Using Diagnostics
- Using LaunchPad Help
- Viewing Properties

BGAN PROFILE MANAGER

ABOUT PROFILE MANAGER

Note: The Profile Manager is only available to users of the Corporate Edition of LaunchPad.

The Profile Manager enables the BGAN LaunchPad Administrator to create and edit user profiles, and so customize BGAN LaunchPad to your organization's requirements. Using the Profile Manager, you can quickly and easily configure connections, apply user restrictions and set up the customer support details available from within BGAN LaunchPad. This enables you to manage the functionality of BGAN LaunchPad, and gives you more control over how BGAN LaunchPad is used.

Note the following about the Profile Manager:

- You can configure and create user profiles for use either on a standalone PC, or across a network of users.
- You can create an unlimited number of user profiles.
- All user profiles are held in the Profile Manager Image Library, stored on a network-shared drive of the computer.

Profile Manager is installed automatically when you install the Corporate Edition of BGAN LaunchPad. Refer to Installing Corporate Edition for details.

Creating and Editing a Profile

CONFIGURING A PROFILE

When you open the Profile Manager, the General tab is active, and the default profile is displayed, as shown below:

User Profile Maker
File
Help
General
Connections
Settings
Support
User Profile
User profiles can be created and edited using this tool. To create an entirely new profile, adjust the default profile described below using the tabbed menus above.To edit an existing profile or create one or more new profiles based on an existing template, import the existing profile using the file menu above.
Current user profile summary
Default profile
Connections
Restrictions
Support info
Save
Cancel
Close

Note the following when creating or editing a connection:

- If at any time you want to clear all the existing settings for a profile, click on the File menu, and select New. You will be asked to confirm the operation. Click Yes to confirm.
- You must go into each of the tabs in Profile Manager, and complete all mandatory fields, before you can save the profile.
- When you first open Profile Manager, any default profile is displayed.

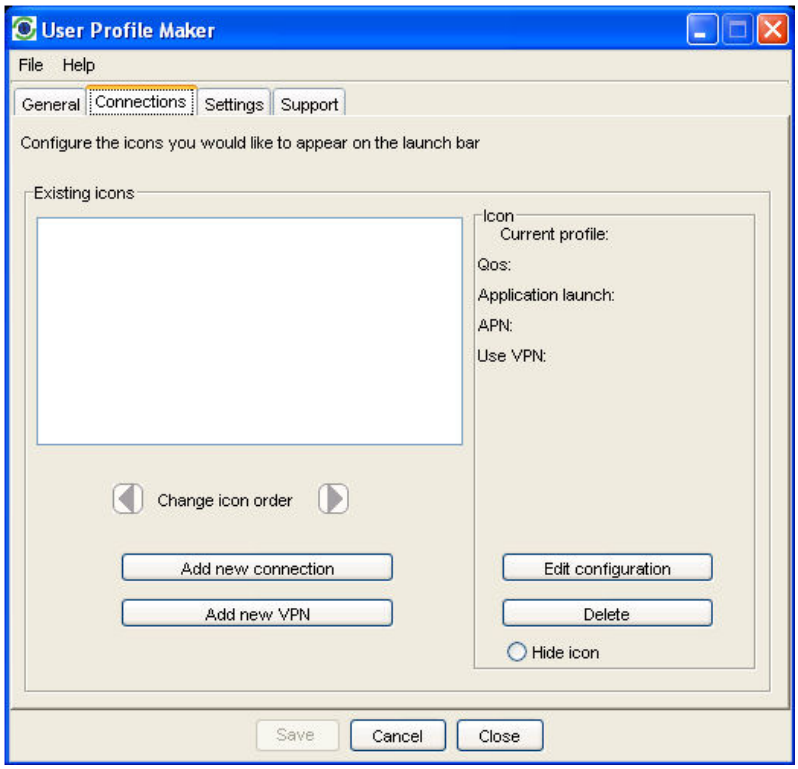
To create a connection:

1. Configure a Connection.
2. Configure Restrictions.
3. Configure Support Details.
4. Configure User Information.

CONFIGURING A CONNECTION

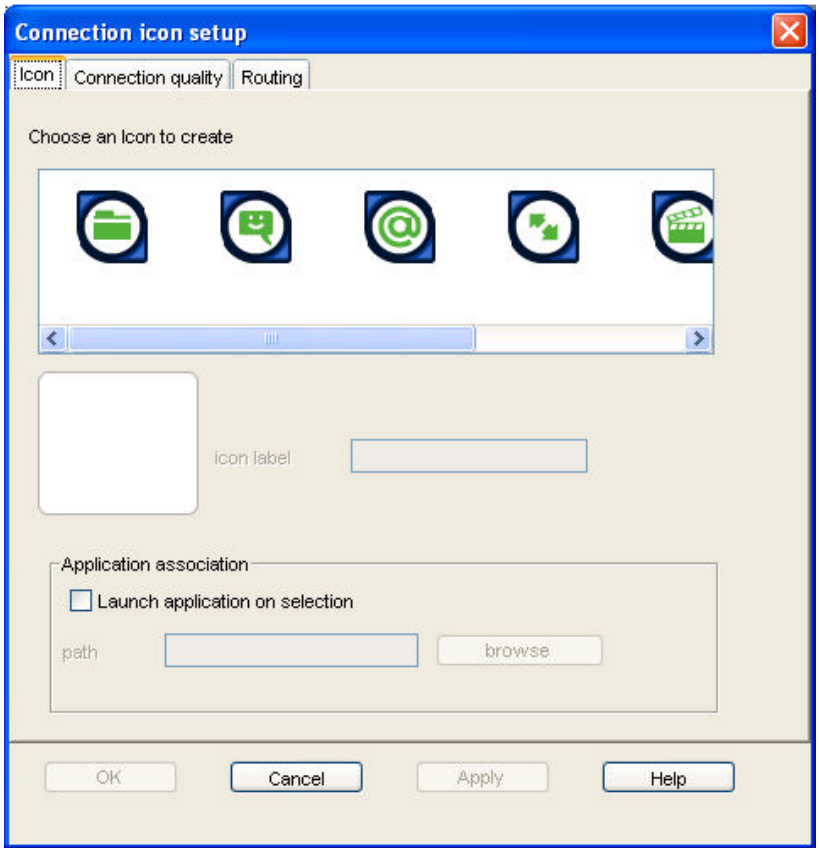
This section describes how to set up a connection. To do this:

1. In Profile Manager, select the **Connections** tab. The Connections screen displays, as shown below:



2. Either:
   - To add a new connection, click on **Add new connection**. Or:
   - To edit an existing connection, select the icon that you want to edit, and click on Edit configuration. Or:
   - To add a VPN, click on **Add new VPN**.

   The Connection icon setup screen displays, as shown below:



The Connection icon setup window has three components, as follows:

- Icon
- Connection Quality
- Routing

CONFIGURING AN ICON

To configure an icon:

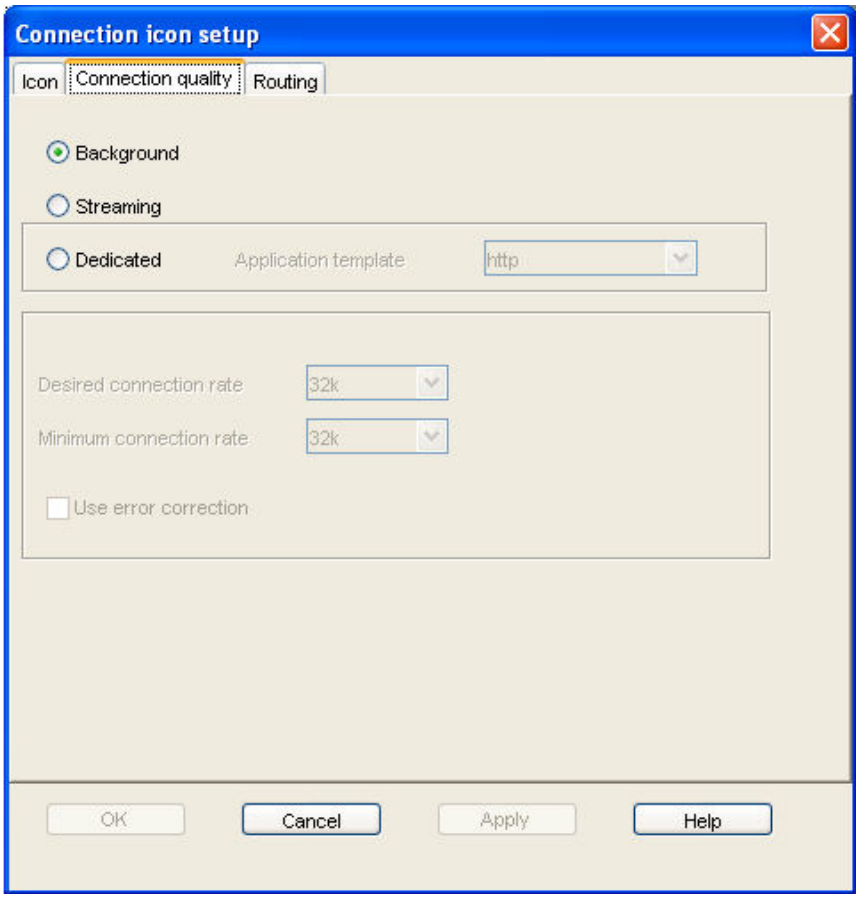
1. Select an icon. The icon displays in the box next to the icon label text box.
2. Type in a name for the connection in the **icon label** text box. The name and icon that you select here will display when you open the Data tab in BGAN LaunchPad.
3. Check **Launch Application on selection** check box to launch a particular application when you click on this icon in BGAN LaunchPad. For example, you may want to launch Internet Explorer when you select this icon.
4. Use the **Browse** button to search for the file name of the application you want to launch with this icon (or if you know the file name, enter it in the Path text box). When you open this connection in BGAN LaunchPad, the application automatically opens. You must close the application before you can close this connection.

5. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to edit without saving.

CONFIGURING CONNECTION QUALITY

To configure the Connection quality for a data connection:

From the Connection Icon Setup window, click on the Connection quality tab. The Connection Icon Setup - Connection quality window displays, as shown below:



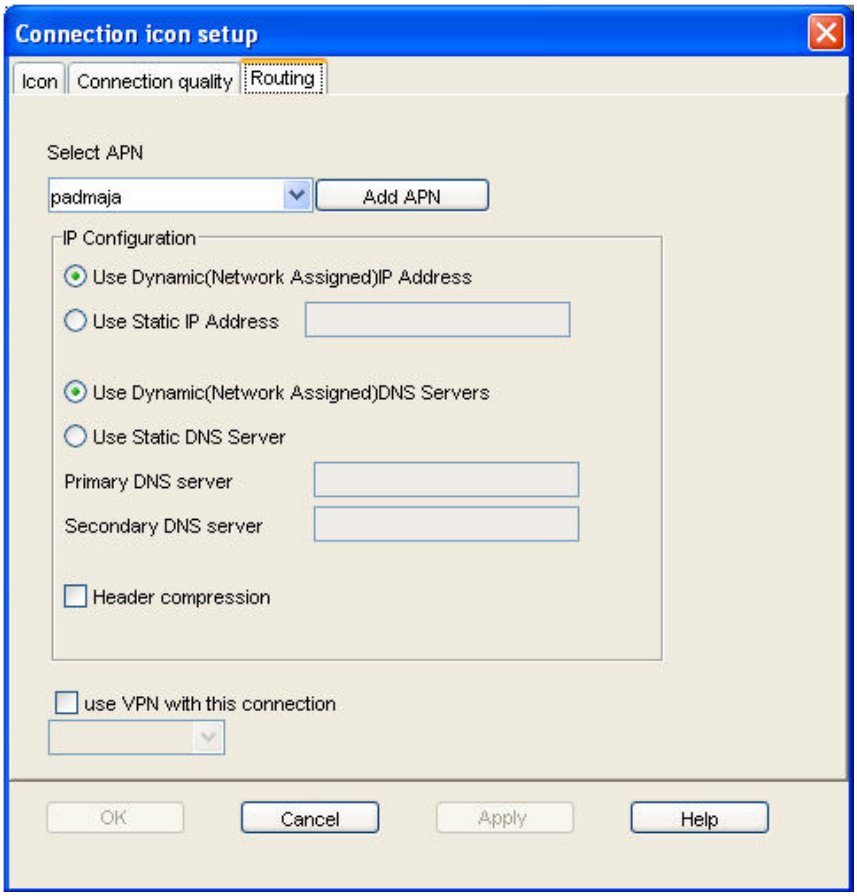
1. Select a **Connection class**. This can be either Standard, Streaming or Dedicated. Note that Dedicated does not display if you are configuring a VPN.
   - If you chose Standard, no further configuration is required in this window.
   - If you choose Streaming, the Streaming Parameters section of the window activates.
   - If you choose Dedicated, the Application template drop-down list and the Streaming Parameters section of the window activates.
2. If you choose Streaming or Dedicated, you can do the following in the **Streaming Parameters** section of the window:
   - Select the Desired Symmetrical Rate from the drop-down list.
   - Select the Minimum Symmetrical Rate from the drop-down list.
   - Check the Use error correction check box if you want to turn error correction on.
3. If you choose **Dedicated**, select an application template (also known as a traffic flow template) from the Application template drop-down list. This associates an application with this connection, and enables the Terminal to correctly route certain types of traffic. For example, if you want the traffic from a selected FTP application be routed through this dedicated connection, select the FTP template from the drop-down list.

4. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to edit without saving.

CONFIGURING ROUTING OPTIONS

To configure the Routing options for a data connection:

From the Connection Icon Setup window, click on the Routing tab. The **Connection Icon Setup - Routing** window displays, as shown below:



1. If the drop-down box is activated, select an APN from the **Select APN** drop-down list. If it is not activated, only the default APN is available.
2. In the IP Configuration section, set up your **IP Address requirements**. Select either Use Dynamic (Network Assigned IP Address) or Use Static IP Address. If you select Use Static IP Address, enter the IP Address in the text box. You can get a static IP address from your Service Provider.
3. In the IP Configuration section, set up your **DNS Server requirements**. Select the default "Use Dynamic (Network Assigned) DNS Servers".
4. If required, check the **Use Header compression** check box to turn on header compression.
5. If required, check the **Use VPN with this connection** check box, and select a VPN from the drop-down list.

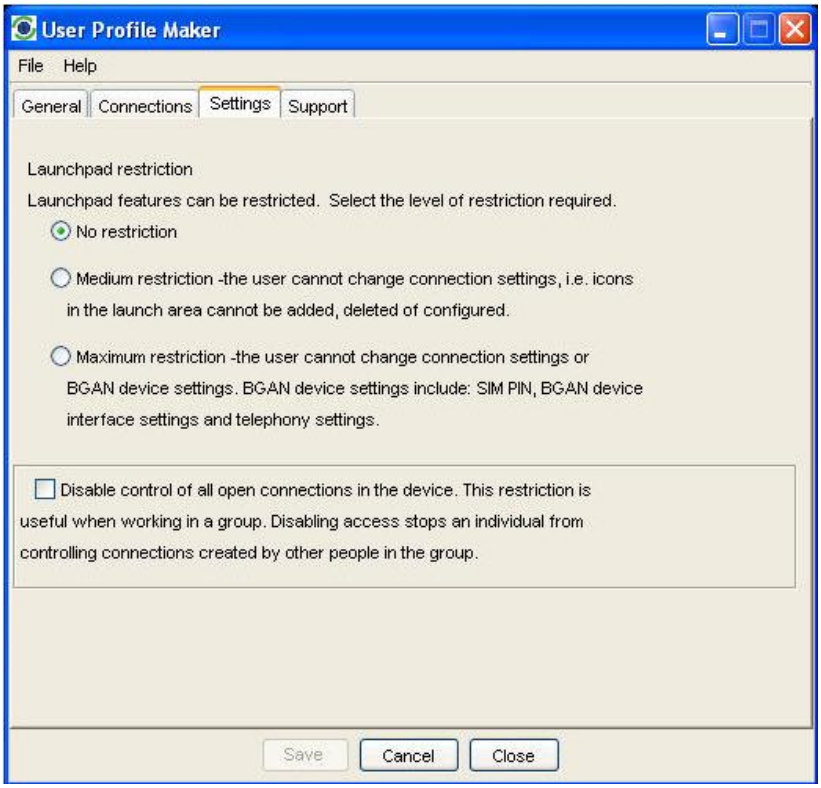
   Note: This option does not display if you are configuring a VPN connection using Profile Manager.
6. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to edit without saving.

CONFIGURING RESTRICTIONS

Using the Settings tab, you can set restrictions on the selected profile.

To set restrictions:

1. Click on the **Settings** tab. The **Settings** screen displays, as shown below:


User Profile Maker
File Help
General Connections Settings Support
Launchpad restriction
Launchpad features can be restricted. Select the level of restriction required.
No restriction
Medium restriction -the user cannot change connection settings, i.e. icons in the launch area cannot be added, deleted of configured.
Maximum restriction -the user cannot change connection settings or BGAN device settings. BGAN device settings include: SIM PIN, BGAN device interface settings and telephony settings.
Disable control of all open connections in the device. This restriction is useful when working in a group. Disabling access stops an individual from controlling connections created by other people in the group.
Save
Cancel
Close

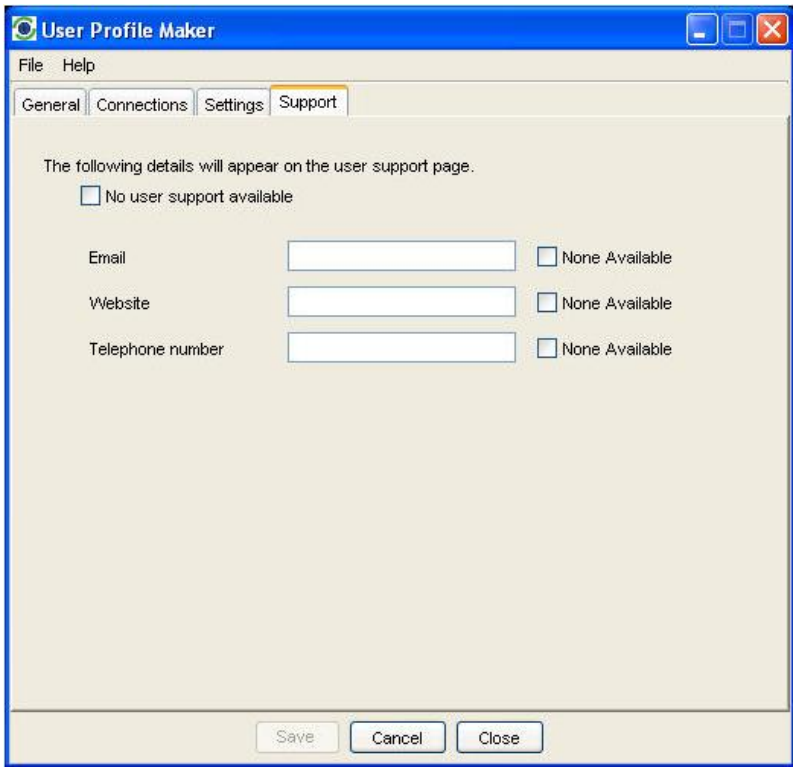
2. Select one of the radio buttons. The options are as follows:
   - **No restriction** – the BGAN LaunchPad user can change the connection and BGAN device settings.
   - **Medium restriction** – the BGAN LaunchPad user cannot change connection settings, but can change BGAN device settings.
   - **Maximum restriction** – the BGAN LaunchPad user cannot change connection settings or BGAN device settings.
3. If required, check the **Disable control of all open connections in a device** check box. The ensures that users cannot edit connections owned by other users.
4. Click **Save** to save the displayed configuration and exit from the **Settings** window.

CONFIGURING SUPPORT DETAILS

Using the Support tab, you can set the Support contact details that will display on BGAN Launch Pad.

To set support details:

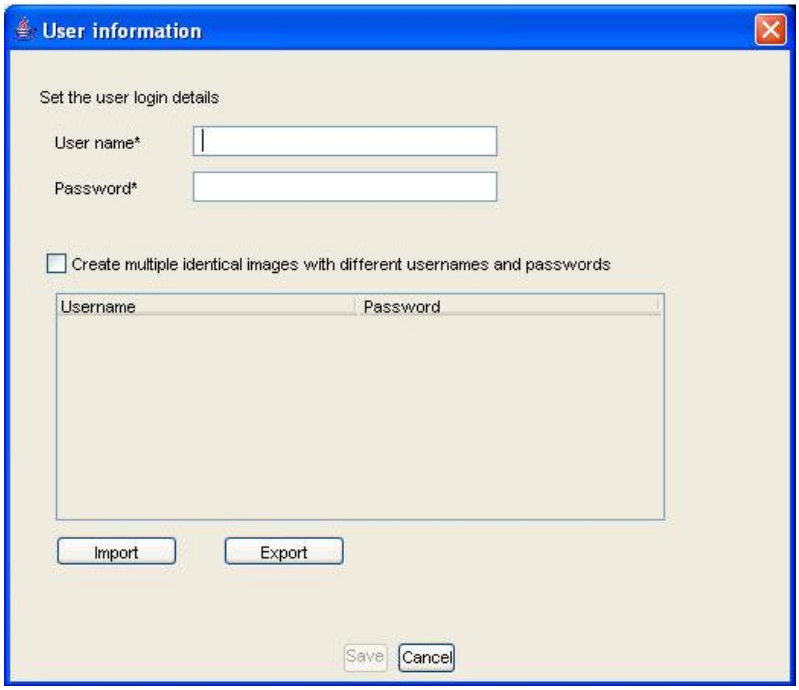
1. Click on the **Support** tab. The Support window displays, as shown below:



2. Either:
   - If no user support is available, click on the **No user support available** check box, or,
   - Enter the details of the available user support in the **Email**, **Website** and **Telephone number** text boxes. If one of these options is not available, click the appropriate **None Available** check box.
3. Click **Save** to save the displayed configuration and exit from the Support window.

CONFIGURING USER INFORMATION

After you have completed all screens in the Profile Manager and clicked on Save, the User Information window displays, as shown below:



This window enables you to create a user login for use with this profile, or to create multiple profiles with different user logins.

To create a user login for the current profile:

1. Type a user name in the **User name** text box.
2. Type a password in the **Password** text box.

   Either:

   - If you only require one user login for this profile, click **Save**. A dialog box opens enabling you to save the login in a selected directory; or
   - If you want to add in additional profiles with different user logins, click the **Create multiple different images with different user names and passwords** check box. An **Add** button displays beneath the Password text box.
3. Click **Add**. The user login displays in the login table.
4. Repeat steps 1, 2 and 4 for each additional profile you want to create.
5. Click **Save** when you have created all required logins. A dialog box open enabling you to save the logins in a selected directory.

IMPORTING A USER LOGIN

If required, you can import a user login.

To import a user login, in the User information window:

1. Click on **Import**. The **Open** dialog box displays.
2. Navigate to the directory where the profile is stored, select the required login and click **Open**.
3. The user login is imported into the login table.

EXPORTING A USER LOGIN

If required, you can export a user login.

To export a user login, in the User information window:

1. Click on the user login you want to export, and click **Export**. The **Save** dialog box displays.
2. Navigate to the required directory, and click **Save**.

MANAGING PROFILES

CHANGING THE ICON ORDER

The available data connections display in the BGAN LaunchPad Data connections window. You can change the sequence in which the icons displays using Profile Manager.

To change the icon sequence:

1. In Profile Manager, click on the **Connections** tab.
2. Select an icon you want to move, and use the **Move Left** and **Move Right** buttons to move the icon to its new position in the sequence.
   Note: If you want to move an icon more then one place to the right or left, you must select the icon each time before using the arrow keys.
3. If required, repeat step 2 for any other icon you want to move.

Deleting a Data Connection

To delete a connection:

1. In Profile Manager, click on the **Connections** tab.
2. Select an icon from the Existing icons screen.
3. Click on **Delete**. You are prompted to confirm the deletion.
4. Click on **Yes** to confirm the deletion, or click on **No** to exit without deletion.

Hiding an Icon

The available data connections display in the BGAN LaunchPad Data connections window. You can hide an icon if required using Profile Manager.

To hide an icon:

1. In Profile Manager, click on the **Connections** tab.
2. Select an icon you want to hide, and select the **Hide icon** radio button. The selected icon is grayed out, and does not display when you open the BGAN LaunchPad Data connections window.
   Note: To restore the icon, repeat step 2 and deselect the **Hide icon** radio button.
3. If required, repeat step 2 for any other icon you want to hide.

SECURITY

ABOUT SECURITY AND CONTROL

Using BGAN LaunchPad, you can change the SIM PIN, and enable a PIN to give a high level of management control over security.

The Security and Control options are as follows:

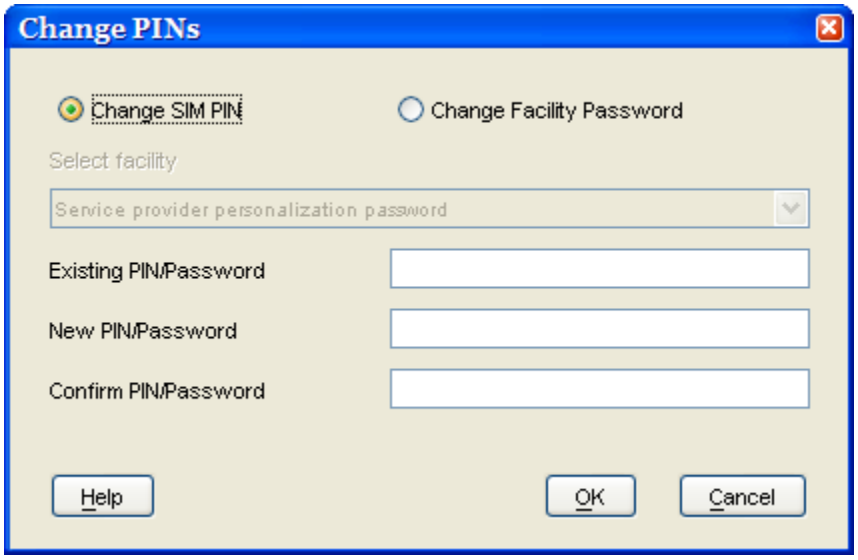
- Changing the SIM PIN
- Enabling a PIN

CHANGING THE SIM PIN AND FACILITY PASSWORD

Using BGAN LaunchPad, you can change the SIM PIN.

To change the SIM PIN:

1. From the LaunchPad main menu, select **Terminal > Change PINs**. The **Change PINs** dialog box displays:



2. Select the **Change SIM PIN** radio button.
3. Enter the current pin in the **Existing Pin/Password** text box.
4. Enter the new pin in the **New Pin/Password** text box, then re-enter the new pin in the **Confirm Pin/Password** text box.
5. Click on **Ok** to save the changes, or **Cancel** to exit without saving.

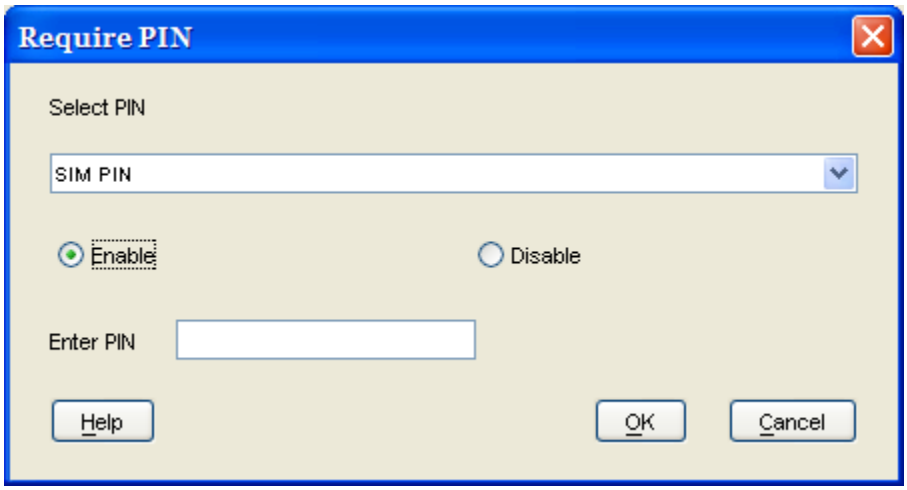
You can control the password for selected phone personalization features. These are typically only used by service providers.

ENABLING A PIN

Using BGAN LaunchPad you can enable or disable a configured PIN.

To enable a PIN:

1. From Launch Pad main menu, select **Terminal > Require PINs**. The **Require PIN** dialog box displays:



2. From the **Select PIN** drop-down list, select the facility for which you want to enable or disable the PIN.
3. Click on the **Enable** radio button to enable the PIN, or click on the **Disable** radio button to disable the PIN. Before you can disable the PIN, you must enter the current PIN in the **Enable PIN** text box.
4. Click on **OK** to save the changes and exit, or click on **Cancel** to exit without saving the changes.

SOFTWARE UPGRADE

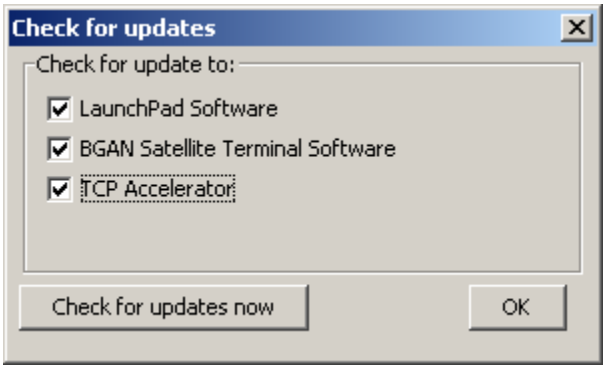
BGAN LaunchPad can check for software updates for the LaunchPad, terminal and other software. It can check for these updates using the BGAN system or a terrestrial connection.

BGAN LaunchPad can also install the appropriate software to the terminal or computer.

CHECKING FOR UPDATES

You can set the types of upgrade you want BGAN LaunchPad to check for.

1. From BGAN LaunchPad main menu, select **Update > Check for Updates**. The Check for Updates screen is then displayed:

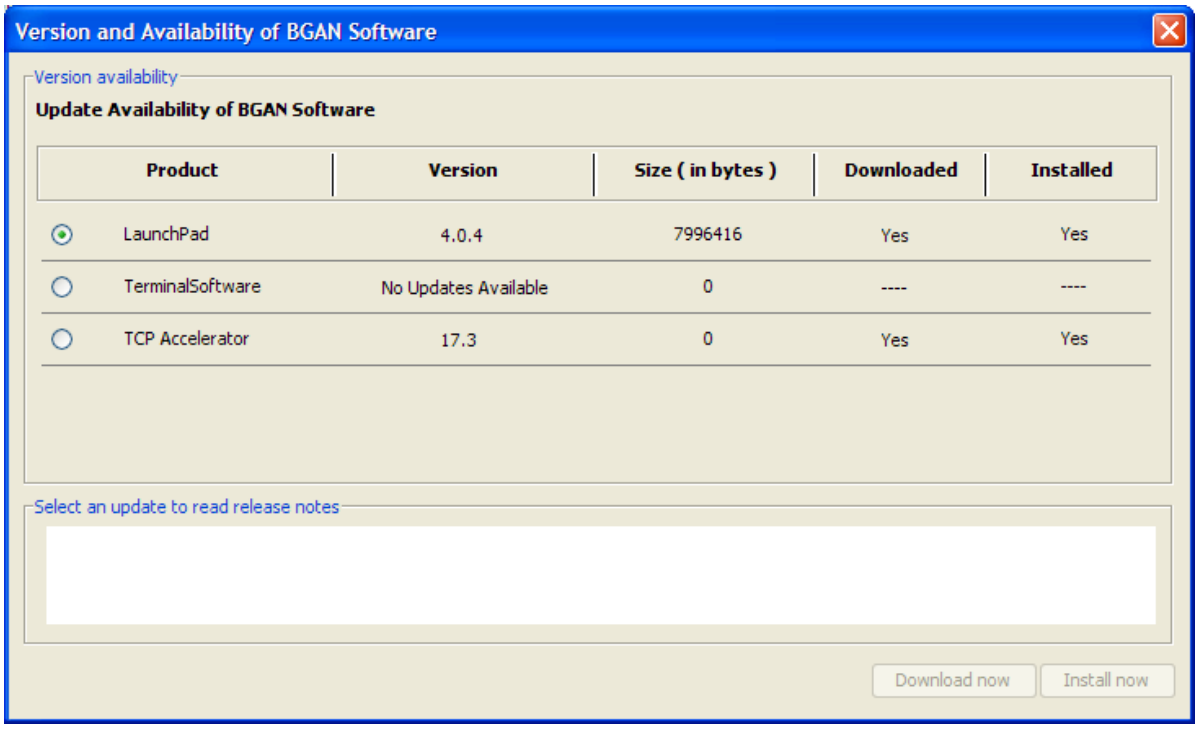


2. In the **Check for update to:** section, choose which software types you want to check for.
3. Click **"Check for updates now"**, or exit the window to skip the check.

SOFTWARE VERSIONS AND AVAILABILITY

You can install the software upgrades that LaunchPad has found.

1. From BGAN LaunchPad main menu, select **Update > Versions and Availability**. The following screen is then displayed:



2. Select which software you want to download or install on the terminal or on your computer.
3. Click on **Download now** if the software has not already been download followed by Install now.
4. LaunchPad will inform you when the download has completed.

Note: Make sure that a loss of power will not interrupt the download process. You should install the terminal's battery and fully charge it, in case there is a power outage; and connect the AC or DC power adapter in case the battery runs flat during the download. Similarly, if your computer is operating from a battery, make sure the battery is charged and connect the computer's AC power adapter or charger.

Note: if you encounter problems downloading a file, check the firewall and other settings on your PC such as McAfee Host Intrusion Prevention. These can sometimes block FTP.

For details using the terminal upgrader, refer to the Software Upgrader section on page 120.

LOG FILES

BGAN LaunchPad maintains log files that detail the commands sent to the terminal, and the responses obtained from the terminal. BGAN LaunchPad also records any unsolicited events reported by the terminal. LaunchPad maintains four types of log file:

- Event log file – reports details of all command and responses exchanged between BGAN LaunchPad and the Terminal.
- Network log file – reports network activity-related information, such as network usage, QoS information, and unsolicited alerts reported by the network.
- Debug log file – LaunchPad debug info
- Terminal log file – generated by the terminal, and can be accessed from LaunchPad.

You can do the following for any of these log files:

- Delete or Clear a Log File.
- Display a Log File.
- E-mail a Log File.
- Print a Log File.
- Save a Log File.

In addition, for event logs and network logs you can:

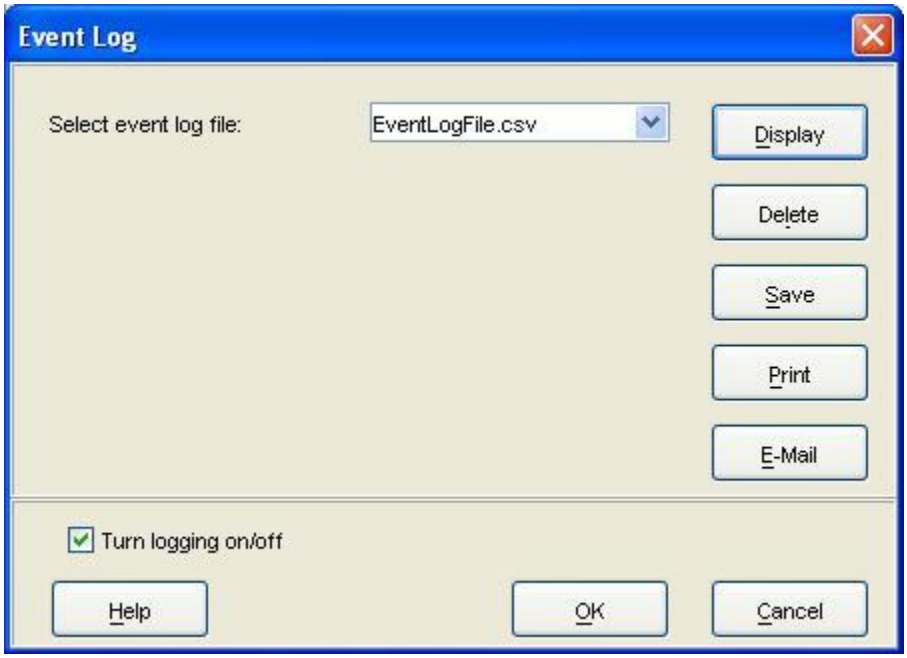
- Turn Logging On and Off.

DELETING OR CLEARING LOG FILES

You can delete a LaunchPad event, network or debug log file, and clear a terminal log file from BGAN LaunchPad main menu.

To delete an event, network or debug log file from your computer, do the following from BGAN LaunchPad main menu:

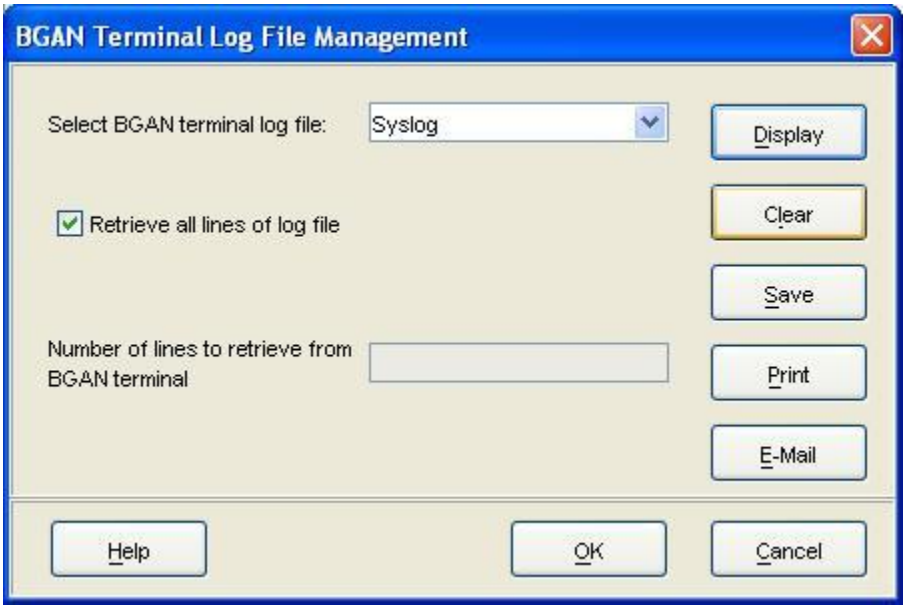
1. Select **File > LaunchPad event log**, **LaunchPad network log** or **LaunchPad debug log**. The Event Log dialog box is shown below:



2. Select a log file from the drop-down list.
3. Click on **Delete**. The log file is deleted from your computer.

To clear a BGAN log file from your computer, do the following from BGAN LaunchPad main menu:

1. Select **File > Terminal Log File**. The **BGAN Terminal Log File Management** dialog box displays, as shown below:



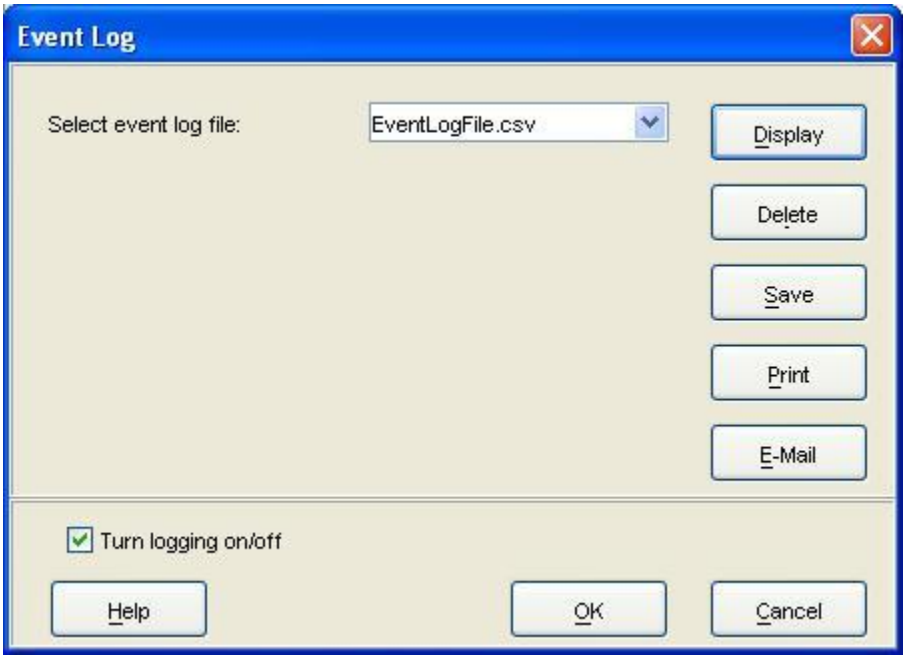
2. Select a log file from the **Select BGAN terminal log file** drop-down list.
3. Click on **Clear**. The log file is cleared from your computer.

DISPLAYING LOG FILES

You can display the LaunchPad event, network or debug log file, or the Terminal log file from BGAN LaunchPad main menu.

To display any of these files, do the following from BGAN LaunchPad main menu:

1. Select **File > LaunchPad event log**, **LaunchPad network log**, **LaunchPad debug log** or **Terminal Log File**. The **Event Log** dialog box is shown below:

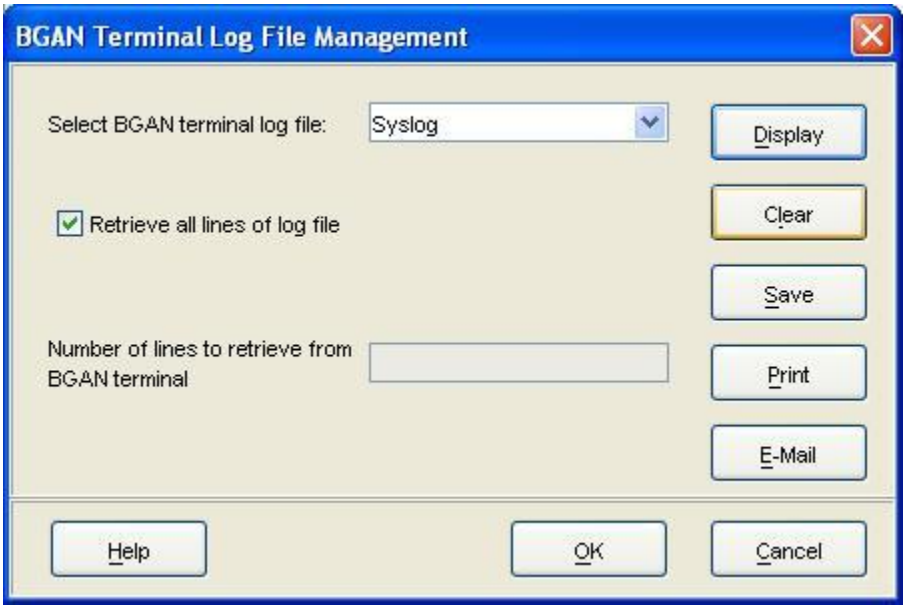


The BGAN Terminal Logging dialog box is slightly different to the network or event log box, and gives a choice to:

- display all the lines in the log file, check the **Retrieve all lines of log file** check box.

Or,

- display selected lines in the log file, uncheck **Retrieve all lines of log file** check box, and enter the number of lines you want to retrieve in the **Number of lines to retrieve from BGAN terminal** text box.

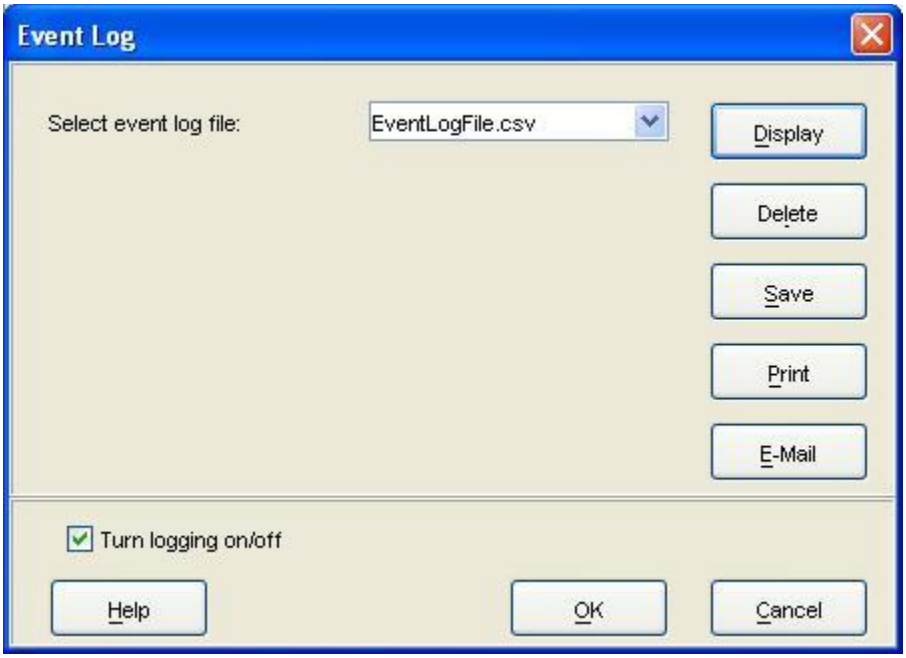


2. Click on **Display** to see the contents of the file you selected.
3. Clock the **Turn logging on/off** box to turn logging on or off.
4. Click **OK** to save the change.

EMAILING LOG FILES

You can email the log files from BGAN LaunchPad main menu.

1. Select **File > LaunchPad event log**, **LaunchPad network log**, **LaunchPad debug log** or **Terminal Log File**. A dialog box displays, as shown below:

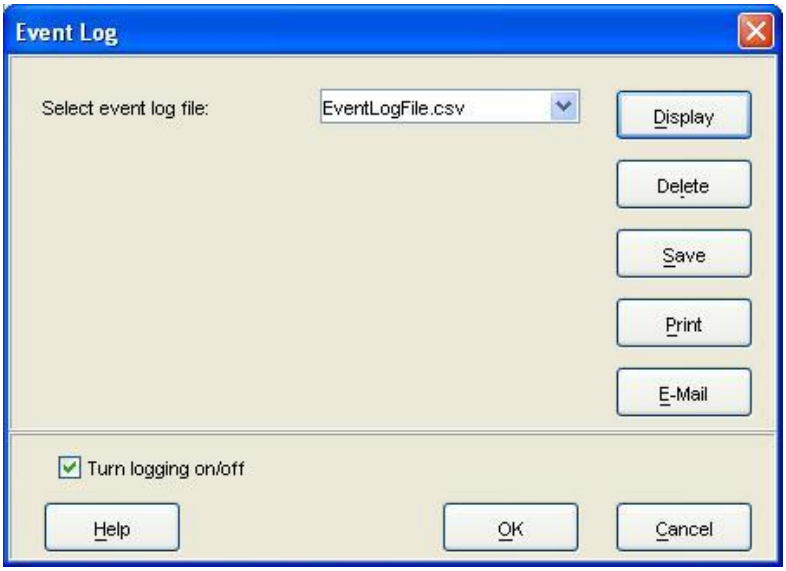


2. Select the file to email from the drop down list.
3. Click on **E-Mail** to open a new message in your Email application, addressed to your support contact and with the log file attached. You can type in a message, if required.
4. Select the file to email from the drop down list.
5. Click on **E-Mail** to open a new message in your Email application, addressed to your support contact and with the log file attached. You can type in a message, if required.

PRINTING LOG FILES

You can print a log file from BGAN LaunchPad main menu.

1. Select **File > LaunchPad event log**, **LaunchPad network log**, **LaunchPad debug log** or **Terminal Log File**. A dialog box displays, as shown below:

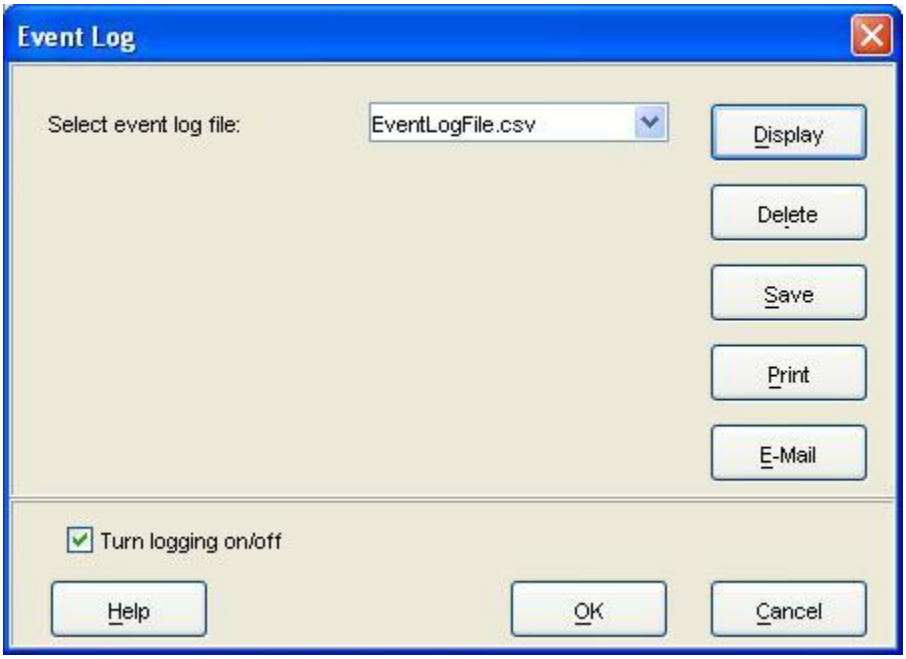


2. Select a log file from the drop-down list.
3. Click on **Print** to open your operating system's print dialog box, and print the log file.

SAVING LOG FILES TO DISK

You can save a LaunchPad event, network, debug or Terminal log file to a file on your computer from BGAN LaunchPad main menu.

1. Select **File > LaunchPad event log**, **LaunchPad network log**, **LaunchPad debug log** or **Terminal Log File**. A dialog box displays, as shown below:



2. Select a log file from the **Select event log file** drop-down list.
3. Click on **Save**. The directory folder for your operating system opens.
4. Navigate through to the required directory, and save the log file under the selected name.

TURNING LOGGING ON AND OFF

1. Select **File > LaunchPad event log**, **LaunchPad network log**, **LaunchPad debug log** or **Terminal Log File**. A dialog box displays.
2. Click the **Turn logging on/off** box to turn logging on or off.
3. Click **OK** to save the change.

SATELLITE TERMINAL BOOT BEHAVIOR

When the terminal is powered up, it goes through a two-phase boot process. The first phase loads a Minimum Boot ROM (MBR) module, which provides basic functionality, including self-test and basic network connectivity.

When the self-test has completed with no failures detected, the MBR then proceeds to the second phase, and loads the application module. This provides full terminal functionality.

If the applications module is not installed or is bad, a new application has to be installed. A bad application could cause the terminal to stall in the second phase, or constantly reset. To prevent this, the boot process can be stopped at the MBR phase, so that a new application can be installed. This is achieved by holding down the audio button at the same time as the power button is pressed.

If the audio button is accidentally pressed during power up, causing the boot process to stop at the MBR phase, then simply power cycle the terminal and it will power-up through both phases of the boot process.

If the terminal MBR module detects a failure during the self-test, it will stop the boot process and indicate the source of the failure through the 6 LEDs used for pointing, as follow:

	Pointing LED Color and Status
G	Solid green LED
R	Solid red LED
B	Blank or off LED
BG	Blinking green LED
BR	Blinking red LED

1	**2**	**3**	**4**	**5**	**6**	**Description of Failure**	**Action**
R	**B**	**B**	**B**	**B**	**B**	The main processor has failed to start	Note 1
G	**BR**	**BR**	**B**	**B**	**B**	The main processor has detected a fault in its memory	Note 1
G	**BR**	**BG**	**BR**	**B**	**B**	The terminal SW is not properly installed	Note 2
G	**BR**	**BG**	**BG**	**BR**	**B**	The terminal SW is not properly installed	Note 2
G	**G**	**BR**	**BR**	**B**	**B**	The main processor has detected a fault in the Ethernet interface	Note 1
G	**G**	**BR**	**BG**	**BR**	**B**	The main processor has detected a fault in the USB interface	Note 1
G	**G**	**BR**	**BG**	**BG**	**BR**	The main processor has detected a fault on the	Note 1

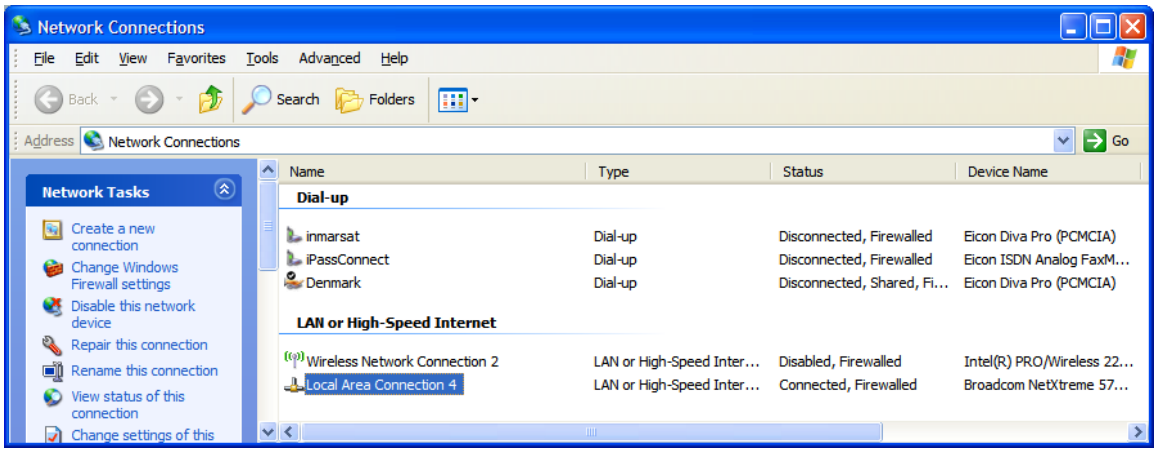
1	2	3	4	5	6	Description of Failure	Action
						WLAN interface	
G	G	G	BR	B	B	The main processor has detected a fault in the ASIC	Note 1
G	G	G	BR	BG	BR	The main processor has detected a fault in the transmitter	Note 1
G	G	G	BR	BR	BG	The secondary processor has detected a fault in its memory	Note 1
G	G	G	BG	BR	BR	The secondary processor has failed to start	Note 1

Note 1: Remove all data cables and power cables from the terminal (remember to remove the battery). Wait 30 seconds, then reconnect power and re-start the terminal. If this does not clear the failure, follow the troubleshooting procedures below.

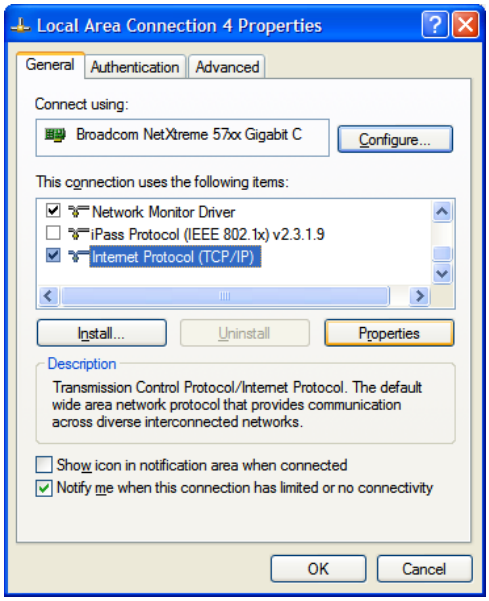
Note2: Re-load the terminal's software.

TROUBLE SHOOTING BOOT MODE PROBLEMS

If a software upgrade fails, the UT will come up in boot mode and the LEDs will be lit up as indicated in the above chart. A limitation in this mode is that the DHCP server is not enabled. If the communication to the UT cannot be established, then you have to manually configure the IP address of the connected PC by going to your Network Connection icon and right click and select "Properties". The following screen shot shows your Network Connections. You need to select the connection that is tied to your Ethernet card (e.g. Local Area Connection 4). Right click on the LAN connection (maybe named differently) and select "Properties".


Network Connections
File Edit View Favorites Tools Advanced Help
Back Search Folders
Address Network Connections
Go
Network Tasks
Create a new connection
Change Windows Firewall settings
Disable this network device
Repair this connection
Rename this connection
View status of this connection
Change settings of this
Name Type Status Device Name
Dial-up
inmarsat Dial-up Disconnected, Firewalled Eicon Diva Pro (PCMCIA)
iPassConnect Dial-up Disconnected, Firewalled Eicon ISDN Analog FaxM...
Denmark Dial-up Disconnected, Shared, Fi... Eicon Diva Pro (PCMCIA)
LAN or High-Speed Internet
Wireless Network Connection 2 LAN or High-Speed Inter... Disabled, Firewalled Intel(R) PRO/Wireless 22...
Local Area Connection 4 LAN or High-Speed Inter... Connected, Firewalled Broadcom NetXtreme 57...

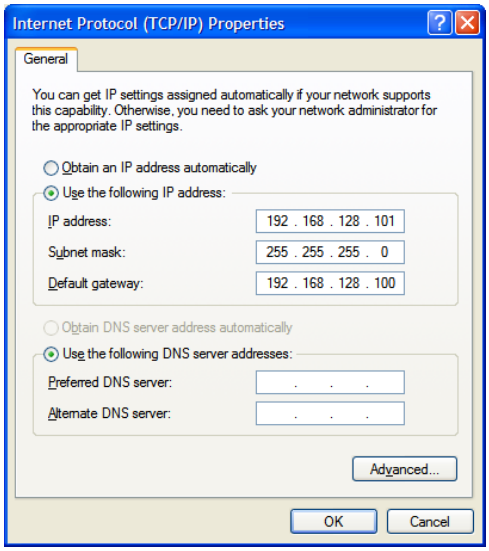
The following screen appears. Scroll down until you find the Internet Protocol (TCP/IP) and then click on "Properties".



The following screen appears:
Click on the radio button that says "Use the following IP address"

The static IP address information below should be entered:
IP Address: 192.168.128.101
Subnet Mask: 255.255.255.0
Default GW: 192.168.128.100

Click on OK to confirm the entries…


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 128 . 101
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 128 . 100
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

To verify the connection to the terminal, open a DOS command window and at the DOS prompt try pinging the UT by typing "ping 192.168.128.100". If you get 4 replies back, you know you have connectivity to the UT.

Once you have connectivity to the UT, then you can use the Hughes Upgrader to load the latest software into the UT.

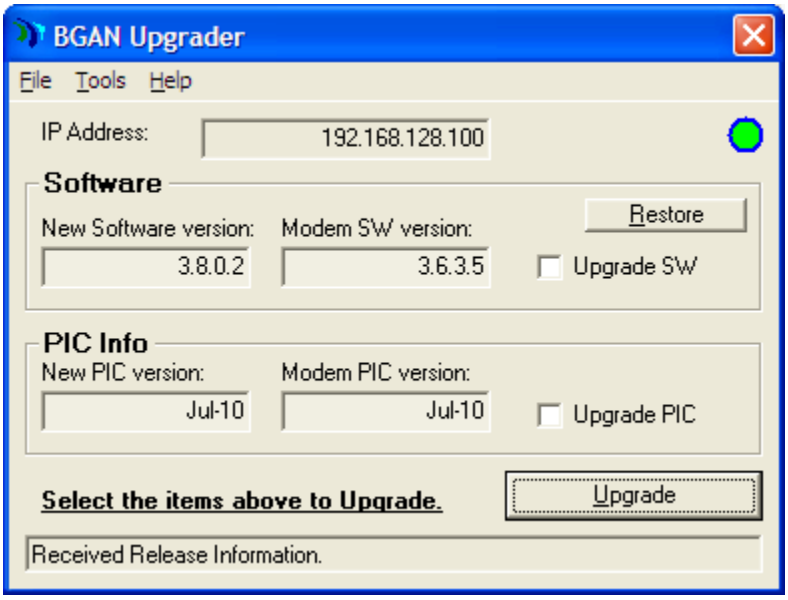
SOFTWARE UPGRADER

The 9201 software upgrader for the latest release is available from the following web sites: www.inmarsat.com/support and www.bgan.hughes.com.

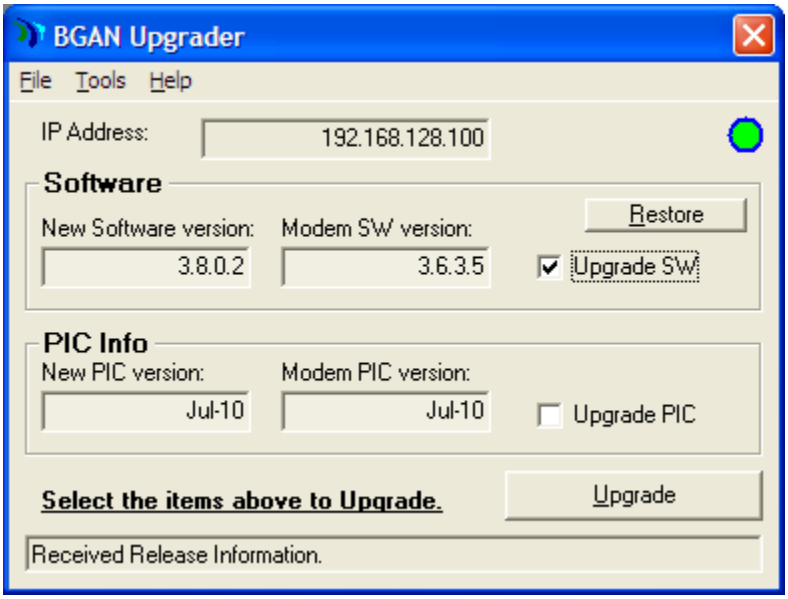
INSTRUCTIONS FOR THE HUGHES 9201 SOFTWARE UPGRADER

The PC upgrader is distributed as a self extracting executable.

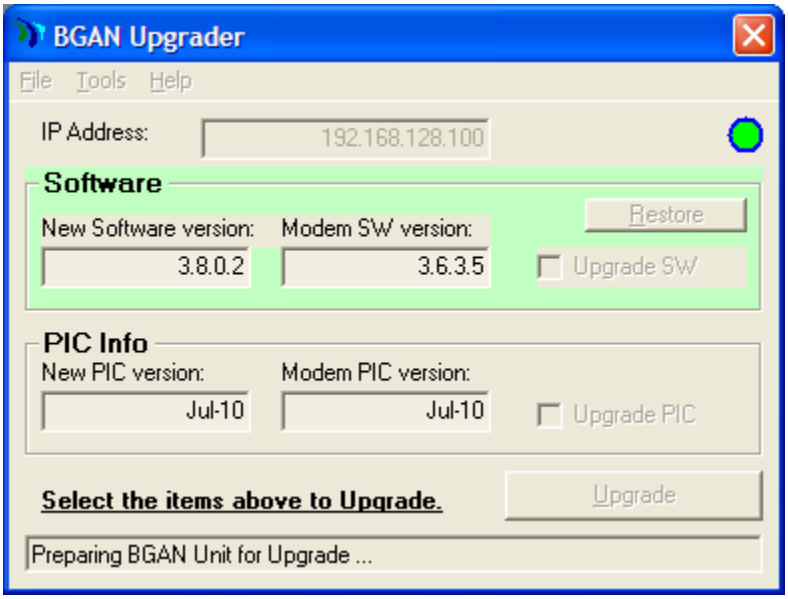
1. Run the exe file, which will unpack the BGAN upgrader into the c:\BGAN\a.b.c.d folder on your computer. Note that a.b.c.d is the version of software that the upgrader will load onto your Hughes 9201 satellite terminal.
2. Connect the Ethernet port of the BGAN modem to be upgraded to the LAN port of the PC using a standard Ethernet cable.
3. Connect an AC/DC converter (supplied in the BGAN install kit) to the BGAN modem, if it does not power on automatically, press the power button to turn it on.
4. Run the BGAN_Upgrader.exe file in the above folder. It will show the current terminal status. If the New software version is higher than the Modem SW version then the unit can be upgraded. If the PIC Info versions do not match then see the PIC upgrade section below.

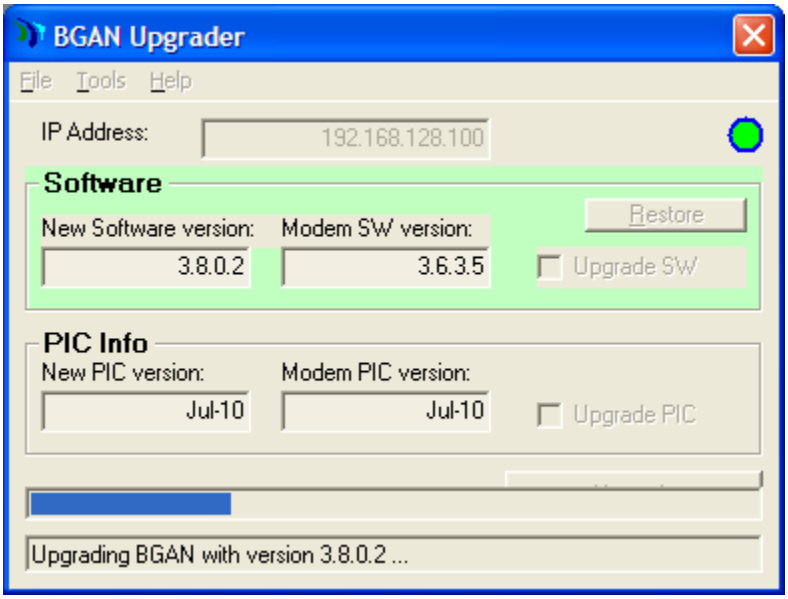


5. Click the "Upgrade SW" box and then the "Upgrade" button:

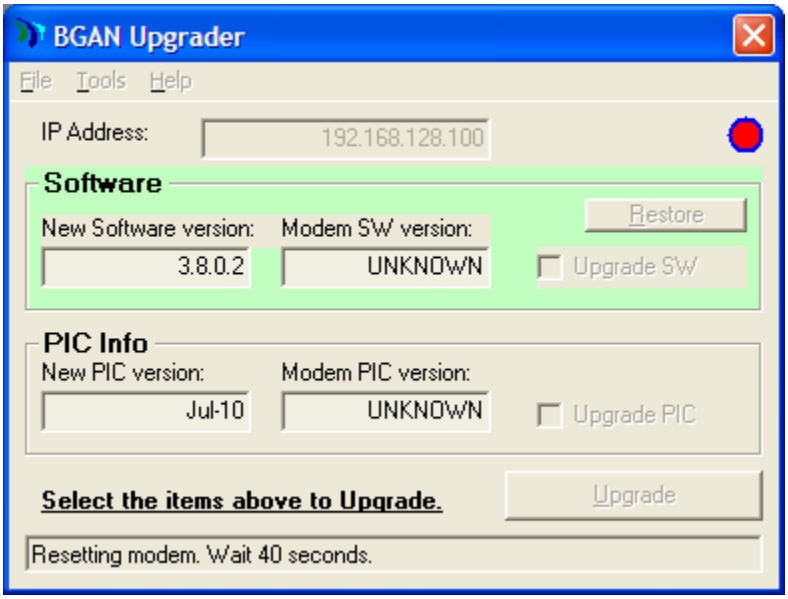


6. During the Upgrade process, it is imperative that the power supply and Ethernet connections to the BGAN modem are not removed or interrupted.
7. The status and progress of the Upgrade is shown in the BGAN Upgrader window.

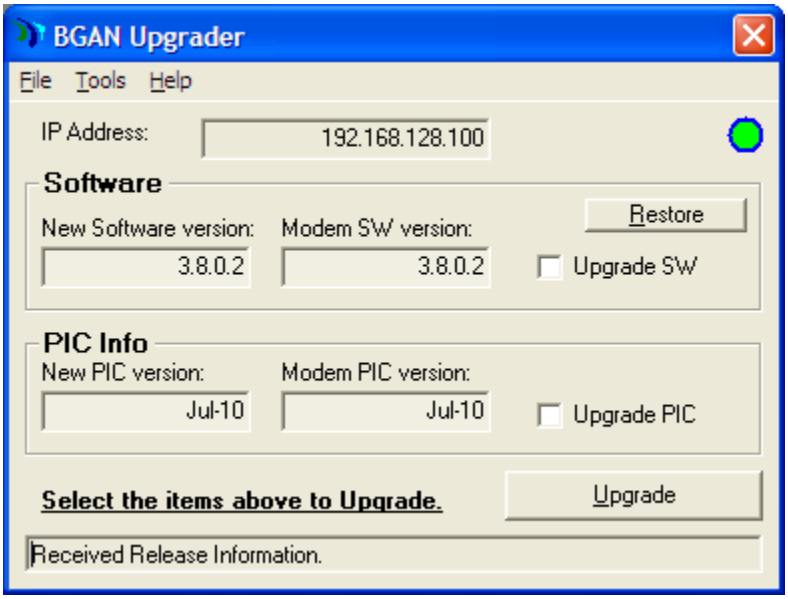




8. The upgrade process will proceed. After about 2 minutes the unit will reboot.



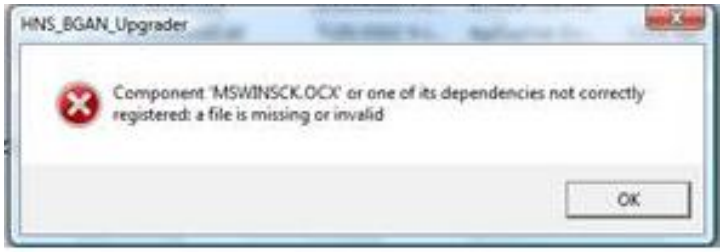
9. After about 30 seconds the new Software version will be indicated.



10. The terminal has been successfully upgraded, and the power and Ethernet connections can be removed.
11. If you want to upgrade another terminal, there is no need to close the BGAN Upgrader window. Just repeat steps 2 through 10, but omit step 4.

Note: if you encounter problems downloading a file, check the firewall and other settings on your PC such as McAfee Host Intrusion Prevention. These can sometimes block FTP.

Note: The upgrader has to be run with Administrator privileges. If you see the following error on Vista or Windows 7, right click on the 'BGAN_Upgrader.exe' and choose the option 'Run As Administrator'.


HNS_BGAN_Upgrader
Component 'MSWINSCK.OCX' or one of its dependencies not correctly registered: a file is missing or invalid
OK

The following functions are also available from the pull-down menu items in the Upgrader program:

File->
- Upgrade: upgrade modem software (same function as 5 above)
- Restore: restores the terminal software back to the version prior to the upgrade
- Upgrade PIC: upgrades only the PIC software, not the main modem software. The PIC software is normally not part of the software release, so it is normally not upgraded at the same time as the modem software. If the upgrader includes PIC software, then it will be indicated in the PIC info field.

Tools->
- Configure Modem Interface: allows you to change the IP address the application uses if your 9201 has been changed from the default IP address.
- Get SW version: reads the software version loaded on your modem, and the version that is available to be upgraded
- Reset Modem: turns the modem off and back on.

Help->
- About upgrades: shows the version number of the upgrader.

Once the upgrade is complete you can check the SW version on the Properties page of the Web UI. You can also use the Diagnostic Report function under the LaunchPad Help pull down window to validate that the download was successful.

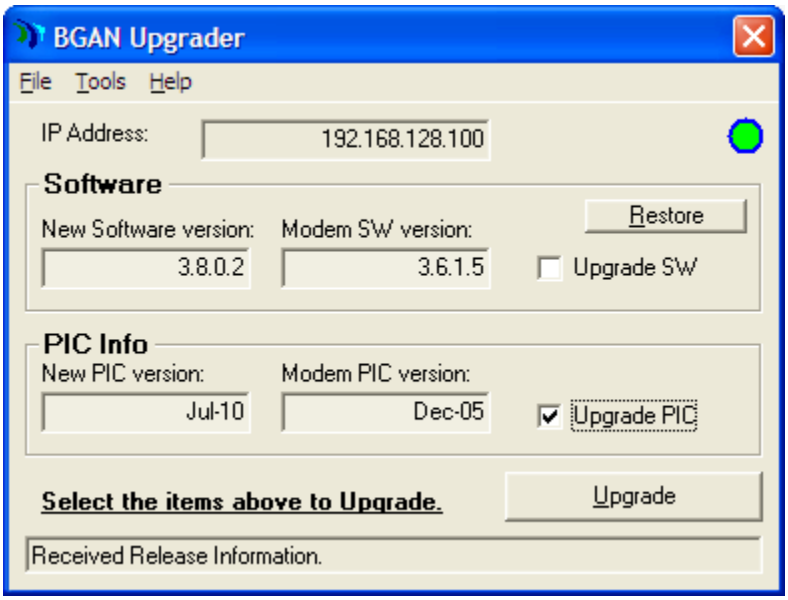
PIC UPGRADE

If the PIC versions do not match in the PIC Info area, you may upgrade the PIC software. You should check the release notification to see if the PIC upgrade is required.

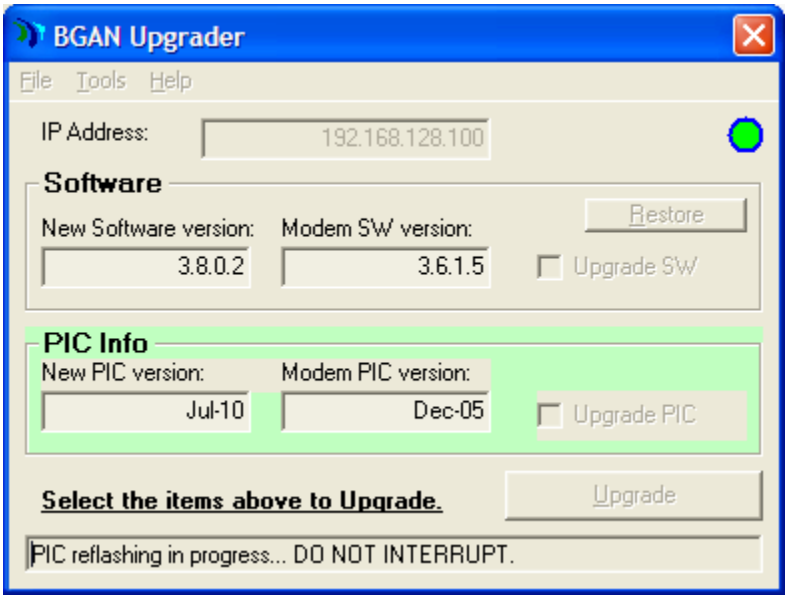
During the PIC Upgrade process, it is imperative that the power supply and Ethernet connections to the BGAN modem are not removed or interrupted or the terminal may become unusable.

The PIC upgrade uses the same steps as the regular software upgrade and can be done at the same time or separately.

1. If the new PIC version is newer than the Modem PIC version and you want to upgrade, click the Upgrade PIC box and then click the Upgrade button:

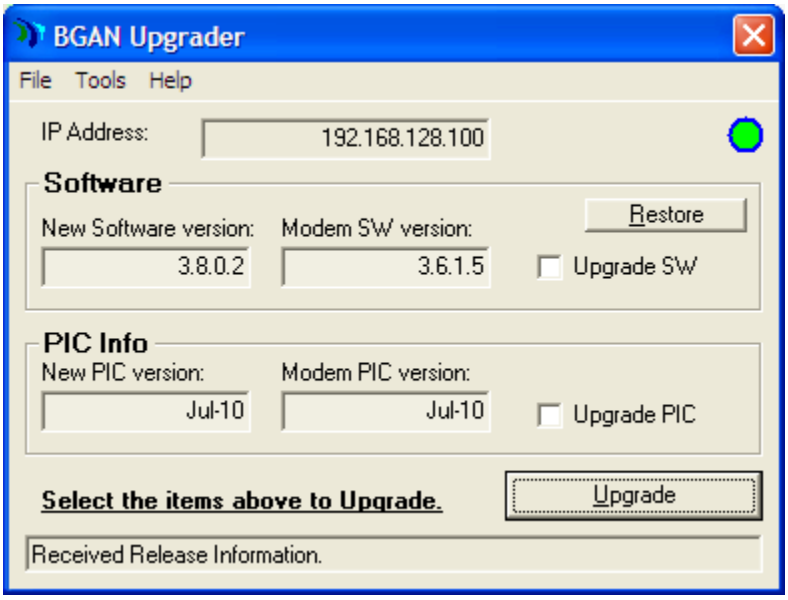


2. **During the Upgrade process, it is imperative that the power supply and Ethernet connections to the BGAN modem are not removed or interrupted.**
3. The status and progress of the Upgrade is shown in the BGAN Upgrader window.



4. The upgrade process will proceed. After about a minute the unit will reboot.

5. After about 30 seconds the new Software version will be indicated.



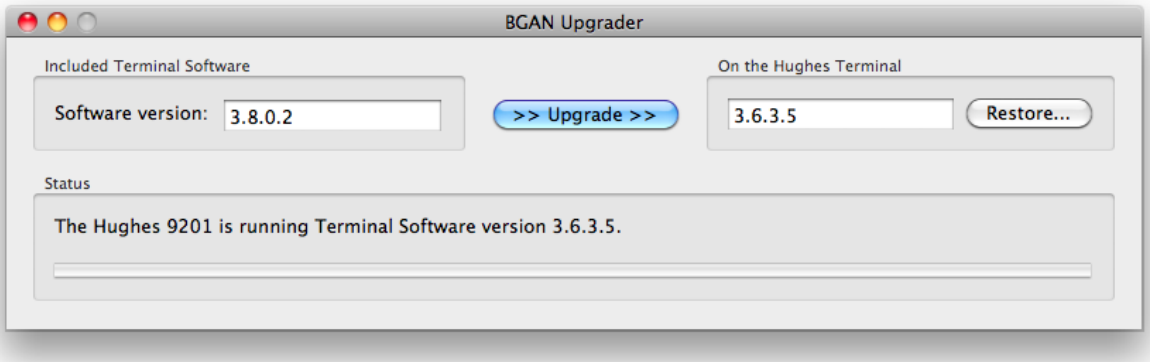
6. The terminal has been successfully upgraded, and the power and Ethernet connections can be removed.

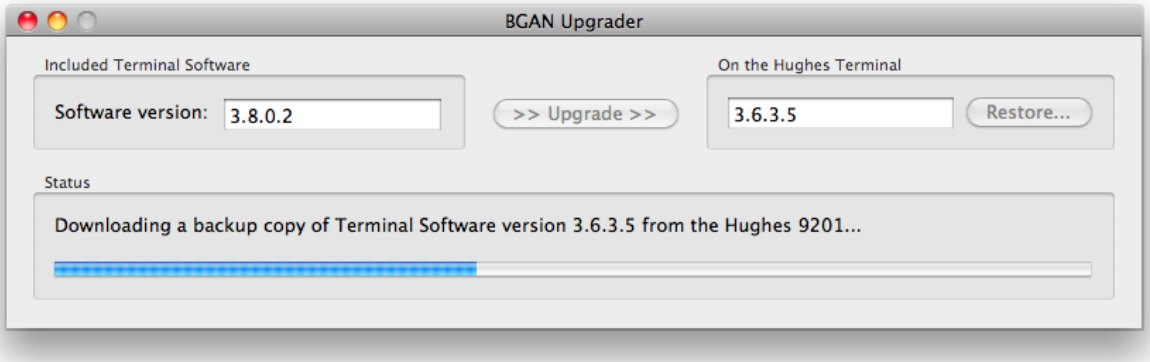
MAC UPGRADER

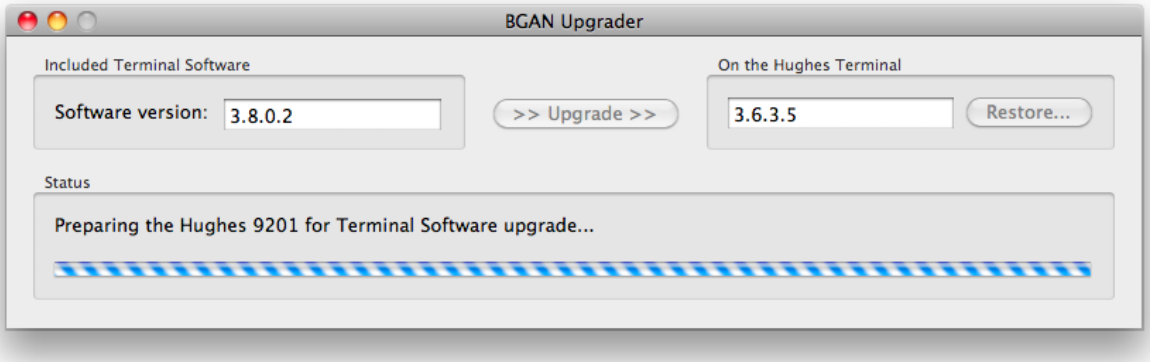
The MAC version of the Upgrader is distributed as a zip file: 9201_Upgrader_a.b.c.d_Mac.zip

Run the application and click the Upgrade button.

The MAC upgrader does not support the PIC upgrade.







TROUBLE SHOOTING

Problem	Possible Cause	Possible Solution
Terminal will not turn on	Power button not pressed for long enough	Press the button for 2 seconds
	Discharged battery	Connect the AC or DC power adapter
	Battery not fitted	Connect the AC or DC power adapter
Battery does not charge	Battery is defective (battery LED is flashing red)	Replace battery
	Battery temperature is outside charging range	Battery will only be charged at temperatures between 0°C and 45°C.
Cannot insert battery into terminal	Battery incorrectly oriented	Ensure the battery is oriented as shown in **First Time Setup**
Cannot insert USIM card holder into terminal	USIM is not correctly seated in the card holder	Ensure the USIM is pressed firmly into the card holder
	Card holder incorrectly oriented	Ensure the card holder is oriented as shown in **First Time Setup**
Cannot lock the terminal's stand at the desired protractor angle	Lock knobs are not tight enough	Ensure lock knobs are turned in the direction shown on the knobs. Both knobs will gradually tighten if you push the unit to a lower angle. This can help with locking the unit when the desired protractor angle is close to 90 degrees.
Terminal's lock knobs cannot be loosened	Closing the stand has tightened both lock knobs	Open the terminal's stand; this will automatically loosen the lock knobs.
The Terminal tips forward.	The stabilizer has not been deployed	See **Terminal Stand Positioning**
In a fixed installation, the terminal will not turn on and reconnect to the BGAN system after a power outage	Terminal's automatic modes are not set correctly	Set the automatic modes, see **Automatic Mode**

Problem	Possible Cause	Possible Solution
The BGAN LaunchPad will not connect to the terminal	No interface connection between the terminal and computer	Ensure there is a WLAN, Ethernet or USB connection between the terminal and computer, see **Connecting the Terminal to the Computer**
	Terminal is in Boot Mode	Follow the instructions in **Troubleshooting Bootmode Problems** to recover the terminal from Boot Mode.
Cannot talk to the BGAN terminal even though it is on and appears to be working	The IP address of the UT may have been changed	From a PC cmd window enter the ipconfig command to check the UT address, which is shown as the Default Gateway.
	The IP address of the UT may have been changed and DHCP turned off	Power up the UT with no SIM installed. The UT will enable the DHCP server and should now assign the PC an address. Use the ipconfig command to get the Default Gateway address. This can then be used as the UT address in LaunchPad or the Web UI to talk to the UT.
The BGAN LaunchPad will not connect to the terminal over the WLAN interface	WLAN WEP is enabled on terminal and the computer's WLAN is not programmed with the WEP key.	Disable WEP, or use the same WEP keys for both the terminal and computer. For details, go to **Connecting Terminal to PC and other devices via WLAN interface**
	WLAN signal is not strong enough	Locate the terminal and computer to reduce any obstructions between them, and locate them closer together.
Terminal will not accept incoming ISDN calls	The MSN programmed into the ISDN device does not match the MSN programmed into the terminal	Ensure the appropriate MSN is programmed into the ISDN device, see **Voice Telephony Services** and **ISDN Data**
		Ensure the appropriate MSN is programmed into the terminal, see **ISDN Equipment**
Terminal will not make outgoing ISDN calls	The ISDN interface is turned off (Note the interface turns off automatically when the terminal is operating from battery power, if no ISDN device is detected within 5 minutes from power on)	Enable the ISDN interface from the BGAN LaunchPad or web UI, see **ISDN Equipment**
		Alternatively, turn the terminal off, then turn it on and immediately connect the ISDN device
	Terminal is still in antenna pointing mode	Exit antenna pointing

Problem	Possible Cause	Possible Solution
Terminal is connected to the BGAN network, but cannot obtain the requested Quality of Service	The terminal is not optimally pointed at the satellite	Re-point the terminal, see **Pointing the Terminal.** Ensure the following minimum LEDs are lit for the requested Quality of Service: Streaming 256: 4 green LEDs Streaming 128: 3 green + 1 red LED Streaming 64: 2 green + 1 red LED Streaming 32: 1 green + 1 red LED background or standard: 1 red LED ISDN data (64Kbps): 2 green + 1 red LED CS voice (4): 1 red LED
Terminal does not obtain a GPS fix	Terminal's location limits visibility of 4 or more GPS satellites. See Field Service Bulletin FSB0306-01.pdf for instructions on tightening chassis screws around GPS antenna area.	Move the terminal to a location where there are few obstructions such as trees or tall buildings, so that as much as possible of the sky is visible; see **Obtaining a GPS fix**
You hear a continuous beep from the terminal when you connect an ISDN device to the ISDN port	The ISDN device is trying to draw too much power from the satellite terminal's ISDN interface The device you are connecting is not an ISDN device. It might be an Ethernet device that you are accidentally connecting to the ISDN port.	Only connect an ISDN device that draws less than 70mA of current at 40V (equivalent power 2.8W) Make sure you connect only ISDN devices to the ISDN port
None of the above solutions resolve the problem	Terminal may have a hardware or software fault, and needs to be re-booted.	Remove the power adapter, and battery. Wait 30 seconds. Reconnect the AC or DC power adapter or the battery, and turn on the terminal. As the terminal powers up, check the status of the LEDs, see **Satellite Terminal Boot Behavior**

GPS

The Global Positioning System (GPS) uses 24 orbital satellites to determine the position of the Terminal anywhere on the globe.

OBTAINING A GPS FIX

In normal operation, a GPS receiver, such as that built in to the Terminal, needs to be able to receive signals from at least four satellites so that it can then calculate a latitude, a longitude and an altitude – this position fix is referred to as a 3-dimensional or 3-D fix. If only three GPS satellites can be seen by the GPS receiver, then the last available altitude measurement is assumed and the GPS receiver calculates a position fix based on latitude and longitude only. This simpler position fix is referred to as a 2-dimensional or 2-D fix and is quicker and easier to obtain than a 3-D fix, but may be less accurate.

The GPS receiver may take between a few seconds and 20 minutes to obtain a GPS fix, depending on how frequently the GPS receiver is being used. The frequency of use determines the how quickly the GPS Terminal is able to start.

- **Hot start** – if the GPS receiver is being used frequently, (that is, in the last two hours), it is regularly updated with data from the GPS satellites, and so only takes a few seconds to obtain a GPS fix after being switched on.
- **Warm start** – if a GPS receiver has not been used for more than two hours, then it will take up to 45 seconds to obtain a GPS fix.
- **Cold start** – if the GPS receiver has not been used for some time or is 300 km or more from where it was last used, it can take as long as 15 minutes to obtain a valid position fix.

The time taken to obtain a valid GPS fix can also be affected by the visibility that the GPS receiver has of the GPS satellites. The GPS system is relatively tolerant of atmospheric conditions such as heavy cloud or rainfall. However, physical blockages, such as tall buildings or terrain can significantly degrade the ability of the GPS receiver to obtain a fix. For this reason, ensure that the GPS receiver has a clear view of as much open sky as possible.

GPS AND BGAN REGISTRATION

BGAN uses the accurate position and timing information obtained from GPS to help ensure efficient registration of a BGAN Terminal with the BGAN network.

Following successful registration and providing the Terminal is left switched on and remains stationary, the GPS is no longer needed. Periodically, the BGAN Terminal contacts the BGAN network to inform the network that it is still switched on. In addition, the BGAN network periodically checks each Terminal for activity, and if the Terminal has not automatically contacted the BGAN network as described above, then the Terminal will be de-registered from the network.

ISDN

The Satellite Terminal provides an ISDN (Integrated Services Digital Network) interface to connect devices for Circuit Switched voice and data services. It is a Basic Rate (also known as 2B+D) interface and uses the Euro ISDN protocol. Note that the Satellite Terminal can only provide service for one 64Kbps B-channel at a time.

DIALING AND NUMBERING

DIALING

As the ISDN numbering system follows the same pattern as the normal telephone system, dialing is carried out in exactly the same manner as making a normal telephone call. The subscriber number is used with the same international and area codes as any other telephone network.

MULTI-SUBSCRIBER NUMBERING (MSN)

ISDN supports Multi-Subscriber Numbering (MSN). MSN is a facility whereby more than one telephone number can be allocated to an ISDN line. The BGAN Satellite Terminal assigns different MSNs for Voice, 3.1KHz Audio, UDI and RDI devices. Each incoming call will be directed to the appropriate MSN depending on the type of call. This allows to route incoming calls to the correct ISDN device (e.g. ISDN phone, data card or Fax).

PDP CONTEXT

A Packet Data Protocol (PDP) Context defines connection aspects such as routing, Quality of Service (QoS), security and billing between a mobile user terminal, such as the BGAN Terminal, and a data network. PDP Contexts are essential to the General Packet Radio Service (GPRS) system, which is used by GSM and UMTS-based 3G networks worldwide for transmitting data.

In order for a user to be able to transfer data across a network, a PDP Context must be activated in the Terminal and associated Core Network. The procedure for this is as follows:

1. After registration with the network, the user activates a PDP Context using an application on the computer or Terminal, and requests sufficient radio resources (that is, power and bandwidth) to support the context activation procedure.

2. Once the resources are allocated, the Terminal sends the Activate PDP Context request to the Core Network. This request includes key information about the mobile user's PDP address (for example an IP address), PDP type (that is, static or dynamic address) the QoS requested for this context, the APN of the external network to which connectivity is requested, the user's identity (IMSI) and any necessary IP configuration parameters (for example, security settings).

3. On receiving the Activate PDP Context message, the Core Network checks the user's subscription record to establish whether the request is valid. If the request is valid, a virtual connection is established between the Terminal and the Core Network, and data transfer can then take place between the Terminal and the external data network, within the scope of the current PDP Context. The PDP Context is stored in both the Terminal and the Core Network.

A single Terminal may have multiple PDP Contexts each with different QoS profiles. The primary PDP Context is a PDP Context with default QoS profile attributes and is always activated first. All other PDP Contexts with the same PDP Address are secondary PDP Contexts. Secondary PDP Contexts share the same PDP Address and connect to the same APN but may have different QoS profiles.

WLAN

Wireless Local Area Networking (WLAN) enables two or more computers equipped with wireless adapter cards to share resources.

A wireless network comprises of two or more computers each equipped with wireless adapter cards forming a network. When the computers are within range of each other each computer has access only to the resources of the other computer but not to any central server or other resource. This type of basic configuration is known as an ad hoc network.

A more common and efficient use of a wireless network is one in which two or more computers equipped with wireless adapter cards are linked to a WLAN Access Point. The Access Point allows each computer to have access to shared resources, such as a broadband Internet connection, as well as to other computers on the network. Such a configuration is known as Infrastructure Mode. This is the default configuration for WLAN in the UT.

PERFORMANCE

The performance of a WLAN network will be influenced by several factors including the number of users on the network, the location of the antenna, the distance from the antenna and the degree of blocking from buildings and other infrastructure. Typical operating ranges are 200-300 meters outdoors and 30-60 meters indoors, the performance degrades gradually as the signal strength decreases.

SSID

A wireless network is identified by a Service Set Identifier or SSID. An SSID is also referred to as a Network Name because it is a name that identifies a wireless network. Wireless devices that wish to communicate with each other must be configured with the same SSID. Several Access Points can be set up using the same SSID so that users can roam from one Access Point to the other without losing network access. The SSID is broadcast so that any wireless device in range can read the SSID and ask permission to associate with it. The SSID is not intended as a security measure – it is used only to identify different networks.

TECHNICAL SPECIFICATIONS

Weight	2.8 Kg (terminal with battery)
Dimensions	27.5 cm x 34.5 cm x 5.0 cm
Battery Life (actual performance based on range of factors and actual usage)	Transmit: 162 Mbits Receive: 864 Mbits 36 hours standby time (standard battery)
Humidity	95% RH at +40˚C
Temperature	-25˚C to +60˚C operating -25˚C to +80˚C storage
Water & Dust	IP-55 standard
Transmitter power	20dBW EIRP maximum
Antenna characteristics	Nominal gain 15dBi, nominal 3dB beam width ±20 degrees.

The Satellite Terminal carries a warranty for 12 months from the date of sale. Contact you Service Provider if you have questions about the warranty, or need to return the terminal for repair.

DECLARATION OF CONFORMITY

Hughes Network Systems, LLC, of 9605 Scranton Road, San Diego, CA, 92121, USA, declares under our sole responsibility that the product Hughes 9201 Satellite IP Terminal to which this declaration relates, is in conformity with the following standards and/or other normative documents:

ETSI EN 301 444 , ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17, ETSI EN 301 489-20, IEC 60950-1, Council Recommendation 1999/519/EC.

We hereby declare that all essential radio test suites have been carried out and that the above named product is in conformity to all the essential requirements of R&TTE Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10 and detailed in Annex [III] or [IV] of Directive 1999/5/EC has been followed with the involvement of the following Notified Body(ies):

BABT, Balfour House, Churchfield Road, Walton-on-Thames, KT12 2TD, UK.

Identification mark: **0168** (Notified Body number).

The technical documentation relevant to the above equipment will be held at:

Hughes Network Systems, LLC, 9605 Scranton Road, San Diego, CA, 92121, USA

Signed by Peter Sroka (Senior Technical Director, August 12, 2005) and Bill Lindsay (Senior Program Manager, August 12, 2005).

EU RoHS (Restriction of Hazardous Substances) Directive

9201 units marked RoHS (MCN 3500058-0001) meet the European Union (EU) directive on Restriction of Hazardous Substances.

EU WEEE (Waste Electrical and Electronic Equipment) Directives

The European Union (EU) directive on waste electrical and electronic equipment mandates recycling of electrical and electronic equipment throughout the EU by August 13, 2005.

Unless otherwise noted, all products, assemblies, and sub-assemblies manufactured by Hughes and its sub-contractors will be compliant with this directive and any subsequent revisions or amendments. This product carries the WEEE label below to demonstrate compliance.

For addition information, contact Hughes Network Systems at: www.hughes.com.

APN: An Access Point Name (APN) provides access to an external network. By default, the SIM Card in your terminal is configured with the APN of your Internet Service Provider. You may want to configure further APNs if you have arranged with your Service Provider to use more than one SIM Card.

ARP: Address Resolution Protocol is used to find out the physical Ethernet address of a host.

BGAN Satellite Terminal: Referenced throughout this document as the Satellite Terminal, "The Terminal" or the UT (User Terminal)", this device implements and manages BGAN satellite communications between your computer and your Service Provider's network.

CID: Context Identifier for a PDP context.

Quality of Service: Quality of Service (QoS) assigns a level of priority to certain types of data traffic, in particular high bandwidth applications such as video and multimedia. QoS attempts to maintain a guaranteed throughput level, and minimize error rates and end to end latency, so providing a higher level of service than "best effort" protocols.

DHCP: Dynamic Host Control Protocol – a protocol used to assign an IP address to a host.

DNS Server: The Domain Name System (DNS) is an Internet service that is required because the Internet does not recognize the text-based Web address or email address that you type into your Web browser or email application. All or part of a Web address or an email address is a domain name, and DNS translates this domain name into an IP address that is recognized by the Internet.

A DNS Server holds a database of domain names and IP addresses, so that when you enter a Web address or email address, you are directed to the correct IP address over the Internet.

Error correction: Error correction ensures that very little data is lost during transfer by asking for dropped packets to be resent. However, because it holds subsequent data whilst the packet is being resent, you may notice some jitter or delay in the received data. This is normal for most data types.

For real-time applications, such as Voice over IP (VoIP) or video, it is recommended that you remove error correction. Removing error correction minimizes delay and jitter..

Ethernet: Ethernet is a local area networking method used widely throughout the computer industry. It is one of the three communications interfaces supported by the Satellite Terminal.

Fault Code: A number which uniquely references an error in a hardware or software system. In the Satellite Terminal, if there is a fault detected, the fault code and a description are displayed in suitable LaunchPad windows.

GPS: Global Positioning System. The GPS receiver in the Satellite Terminal receives signals from the constellation of GPS satellites. It uses these signals to determine the Terminal's location on earth. That location is used during registration to gain access to the BGAN system.

Header Compression: A header is the component of a data packet that precedes the data that you are sending. The header contains information such as source and destination address, error checking and other administrative details. In most data types this does not noticeably affect the data transmission rates. However in multimedia applications such as voice and video, the header can significantly affect performance.

Inmarsat recommends that you switch on header compression for multimedia applications, such as video.

IP Address: An Internet Protocol address, or IP address, is a number that identifies the computer that is sending or receiving information transmitted over the Internet. An IP address is made up of four groups of numbers between 0 and 255, separated by periods. For example, 207.115.79.4 is an IP address. In the BGAN system, IP addresses can be dynamic or static.

Dynamic IP Address: A dynamic IP address is a temporary address that is assigned by your Internet Service Provider (ISP) when you connect to the Internet. If you do not need a permanent IP address, Inmarsat recommends that you obtain a dynamic IP address. Normally, individual users of the Internet use a dynamic IP address.

Static IP Address: A static IP address is assigned permanently, and is used every time you connect to the Internet. Normally, companies and other organizations that have their own networks use static IP addresses.

MSN: Multiple Subscriber Number, for ISDN call types.

PDP: Packet Data Protocol.

SIM Card: Your Service Provider supplies you with a Subscriber Identification Module (SIM) Card or a Universal Mobile Telecommunications System Subscriber SIM (USIM) Card.

A SIM or USIM Card is a card commonly used in a GSM phone. The card holds a microchip that stores information and encrypts voice and data transmissions, making it difficult to listen in on calls. The USIM Card also stores data that identifies the caller to the Service Provider.

Standard Connection: A standard connection is charged by volume of data sent. The bandwidth you are allocated depends on terminal type and network availability, but is always 'best effort', that is, you are allocated bandwidth depending on your requirements and the requirements of other users of the BGAN network, or BGAN Terminal. This connection class is suitable for most data types, other than multimedia.

Streaming: A streaming connection is charged by time. You are charged for the amount of time the connection is active. Streaming enables multimedia data, such as video, to be sent in a continuous data stream and converted into sound and pictures.

Symmetrical Rate: The rate at which streaming data is transmitted, in kilobits per second (Kbps). This rate applies to transmitted (uplink) and received (downlink) data.

Desired Symmetrical Rate: From the drop-down list, choose the desired data rate for your Streaming connection. This can be 32 Kbps, 64 Kbps, 128 Kbps, 176 Kbps or 256 Kbps. This figure is guaranteed, unless the connection cannot meet this requirement because of bandwidth restrictions. In this case, the rate defaults to the minimum symmetrical rate.

Minimum Symmetrical Rate: From the drop-down list, choose the minimum data rate that you are prepared to accept for your Streaming connection. This can be 32 Kbps, 64 Kbps, 128 Kbps, 176 Kbps or 256 Kbps. This rate must be the same or lower than the Desired Symmetrical Rate. If the connection cannot meet this requirement, an error message is displayed.

TE: Terminal Equipment, e.g. your computer or ISDN phone.

Traffic Flow Template: A Traffic Flow Template, also called an Application Template, is a series of data filters such as IP address or port number that allow the Core Network to classify packets received from an external network into the correct PDP Context. When incoming data arrives at an access point in the core network, a packet classifier will make a PDP Context selection based on the Traffic Flow Template, and map the incoming data packets into the PDP Context with the correct QoS attributes. The use of a Traffic Flow Template allows multiple PDP Contexts to be associated with the same PDP address.

USIM Card: Your Service Provider supplies you with a Subscriber Identification Module (SIM) Card or a Universal Mobile Telecommunications System Subscriber SIM (USIM) Card.

A SIM or USIM Card is a card commonly used in a GSM phone. The card holds a microchip that stores information and encrypts voice and data transmissions, making it difficult to listen in on calls. The USIM Card also stores data that identifies the caller to the Service Provider.

UT: User Terminal; BGAN Satellite Terminal.

Virtual Private Network: A Virtual Private Network (VPN) enables remote offices or users to gain secure access to their organization's network over the public telecommunications network. This provides the benefits of remote access without the expense of dedicated leased or owned lines. VPNs work by using tunneling protocols, such as L2TP, to encrypt data at the

sending end, and decrypt the data at the receiving end. This "tunnel" cannot be accessed by data that is not properly encrypted.